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THE MANAGEMENT OF THE BODY

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The heart and blood-vessels : their care



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**THE HEART AND BLOOD-VESSELS;
THEIR CARE AND CURE
AND
THE GENERAL MANAGEMENT OF THE BODY**



THE HEART AND
BLOOD - VESSELS;
THEIR CARE AND CURE

AND

THE GENERAL MANAGEMENT
OF THE BODY

BY

I. H. HIRSCHFELD, M. D.

FIFTH EDITION



FUNK & WAGNALLS COMPANY
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19

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I

THE FOLLY OF IGNORANCE

I

THE FOLLY OF IGNORANCE

“The Report on National Vitality, its Waste and Conservation, for the National Conservation Commission in 1909,” states that three million people are sick every day in the United States, and that half of them suffer from preventable diseases. This number is increased by at least two millions when we include the mentally defective criminal and the partially disabled neurasthenic.

If it is true that God made man after his image, then we must have changed the likeness when we are subject to so much misery. If we consider the white man as the highest type in evolution, then he represents a product of environment and an adjustment to this earth. One must fit the other and sickness should be something entirely out of the ordinary and not an every-day occurrence.

The reason so many people are sick lies in our wrong manner of living; we have forgotten that the laws of nature can not be broken with impunity by the laws and actions of man.

The human body has been constituted in a certain way and can not remain fit for the duties and pleasures of life if brought under conditions for which it was not fitted by nature. We are free to

THE HEART AND BLOOD-VESSELS

follow nature's lead, use its principles and forces, to fly, to apply steam and electricity, to irrigate the soil, etc., etc., but we can not keep our bodies sound with a kind of food or air for which its organs were not built and without the nature-made rhythm of work, play, rest, and relation to the other sex.

Few people know for certain what the needs of their mind and body are.

When reason was given to man, he lost in exchange that part of his instinct which led him to lead his natural life and, in the possible choice of many ways, the right ones were not found by science until recently, after superstition and ignorance had marked entirely wrong tracks for centuries.

Ignorance may be bliss when one is incurably sick; it must be fought when timely knowledge will protect us against injury and that fatal sequel "too late."

This book represents, in this battle, the share of a man who was confronted daily, for thirty years, with tears of children, grief of parents, and all kinds of misery gone beyond human relief, most of which could have been easily avoided by timely understanding of the body's normal requirements.

There is no reason why a sound-minded person should be annoyed by the study of the nature of man. He should rather delight in it. The body and its action are more wonderful than the finest

THEIR CARE AND CURE

man-made machinery; they are helped by everything which increases the joy of living and injured only by what is against our true interest. Such information certainly offers most encouraging reading, and no novel possesses more material for a fascinating story.

We chose as an illustration and inducement to make the reader more generally interested in the wonders of his body, a special subject: the heart and blood-vessels. These are to-day the organs which most frequently wear out first and cause death and invalidity of many of the best men in the community at an age when they should be enjoying the fruits of their life-work. The statistics of Chicago and of all the large cities of America and Europe show an approximate increase in the death-rate from heart diseases during the last forty years of from 5.4 to 12.06; of chronic Bright's disease, which is practically a disease of the blood-vessels, from 8.86 to 9.61. If we add the increased death-rate from an exhausted heart during acute sickness or operations, we find that to-day ten times more people die from diseases of the heart and blood-vessels than in 1871.

Should this book reach some one after it is too late for prevention and the body is already sick, he may follow the principles laid down with the assurance that his joy of living will become greater and his sufferings less. Nature has the power and the

THE HEART AND BLOOD-VESSELS

will to compensate for sickness and weakness in one organ by strengthening and rearranging its help-mates. We know to-day that the deciding factors are the power of life, vitality, and nervous energy, not the structure or the anatomic condition. In spite of hardened blood-vessels and a heart with defective valves, an efficient and happy life is possible if properly adjusted to the state of health.

The care and cure of the heart is possible only when all other organs normally cooperate and this *always-to-be-remembered* fact makes it necessary to discuss in this book the correct management of the whole body.

The official health departments defend us against many diseases, but they can not possibly protect each individual against sickness arising from his own mistakes; and legislated high wages and leisure time ill spent make the world neither better nor happier.

The health question is the same as the social question—an educational one. It is astonishingly easy to avoid unhappiness, premature death, and sickness without sacrifice of time, pleasure, or money, when one knows how, early enough in life. This book is intended as a guide which shall help the healthy to remain well, the sick to become sound, the despondent to be brave, the perplexed to understand, and parents to cultivate in their children habits which guarantee an efficient, happy, and long life.

II

THE STORY OF THE HEART

1. Its tremendous task. Fit for 100 years.
2. A pump made of muscle and valves.
3. The interior arrangement.
4. Heart-beat and pulse and the strength kept in reserve.
5. The size of the normal heart.
 - (a) Enlarged (hypertrophic) heart.
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8. The motors of the heart.
9. The regulation of the motors.
10. The arteries and why they should not become hardened (arteriosclerosis).
11. The heart as good as its muscle, notwithstanding valve defects.

II

THE STORY OF THE HEART

Our body is built of millions and millions of single cells, just as a house is built of many single stones, these cells being alive as long as the blood brings them their food for the production of vital energy. The blood must be kept circulating all the time and the moving power of the circulation is the heart.

From the first to the last of life the heart must keep on working. A stop of ten seconds means danger, of ten minutes, death. It moves in each hour, on an average, seven hundred and thirty quarts of blood, the six to eight pounds that our body contains returning often enough to amount to such a great figure. It produces each hour power sufficient to lift 1,500 pounds three and a half feet high. If we imagine ourselves holding an eight pound dumbbell and bending the arm seventy times a minute day and night, summer and winter, continually, for one, two, three, four, ten, twenty, forty, fifty, or more, years without stopping, we get an approximate idea of what a wonderful piece of machinery the heart is. Its achievement is almost beyond human conception, for, by counting the number of

THE HEART AND BLOOD-VESSELS

heart-beats, eighty for each minute, we find there are 2,102,400,000 beats in fifty years, which is more than the human mind can appreciate.

At birth every heart is fit and ready for such a tremendous task, and except in the very few cases where people are born with a defective organ, there is no earthly reason why practically every one should not retain the heart in perfect working order until, having enjoyed a long life, they should be glad to part from this world in the same willing spirit as they would leave the dining-hall, after an altogether satisfactory meal, to join friends who have preceded them to another room.

On the contrary, just at present no organ oftener disturbs the efficiency and joy of living at the prime of life than the heart, for while it practically does not need any special care, we have acquired many little otherwise unessential habits which prematurely wear it out, just as a few grains of sand destroy, in time, a powerful steam engine. The youthful elastic body does not feel the effect of slight injuries, but later, unexpectedly, the result is made apparent around the fiftieth year, when the worn-out heart stops the way to life's further satisfactory progress, and the same mischief is often done earlier by preventable chronic or acute diseases.

We possess a safe protection against such emergencies, which, fortunately, is so easy that we gain immunity almost the instant we thoroughly understand the most important facts regarding the anatomo-

THEIR CARE AND CURE

my and action of the heart and its relationship to the rest of the body. This same knowledge shows at once the most satisfactory compromise to be made between our ambition and the limitations imposed by a heart already damaged beyond repair.

Blind trust in providence and fatalism previously made it look like a loss of time to learn anything about one's body, as it seemed to be in the absolute and exclusive care of the power above. To-day we suspect, from the increased length of life which results from a hygienic manner of living, that the powers above do not mean to fix a narrow limit to man's earthly existence and that they really mean to put part of our destiny into our own hands. The reader, therefore, will find it to his own interest to concentrate his thoughts on the next few pages of descriptive matter, after which the rest of the book will be easy reading.

The function of the heart consists, first, in bringing the blood with fresh food to each cell, and then in taking it back with the waste and a load of new provisions for the next turn. Every engineer would recommend for such work a pressure- and suction-pump, and the heart practically is a pump made of a piece of flesh (muscle), conical in form, of reddish-brown color, with inside cavities. The pumping is done when the muscle contracts itself; then the cavities inside are closed and the contents pressed out; when, after part of a second, the muscle relaxes,

The Heart as
Pumping-
station

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the walls draw apart and blood is drawn into the opened cavities. The arrangement is practically the same as that of the little rubber ball children play with; by pressing the ball any liquid inside is squirted out. By opening the hand the walls separate and any liquid with which its opening is brought in contact is drawn into the ball. The pressing and opening hand takes the place of the muscle of the heart. As the blood runs in and out of the heart in different places, a system of automatic valves necessarily had to be provided, which, opening and closing alternately, force the current to run in the proper direction.

In lower animals there exists only one cavity inside of the heart-muscle, just as in a child's rubber ball. In man and higher animals the cavity is divided into two divisions, for the following reasons:

To produce the essential heat and strength for the body, each of its millions of cells is arranged to act as a furnace. And, like a furnace, each cell needs for its work fuel (food), oxygen from the air and, besides, a provision for getting rid of waste gases (carbonic acid gas).

The fuel for the cells is taken from the intestines by the blood on its return to the heart from all over the system with the waste gases. There is no use of sending to the cells such a mixture, which, tho it contains food, also contains waste gases and far too short a supply of oxygen. First the waste has

THEIR CARE AND CURE

to be gotten rid of and plenty of oxygen taken in, to make the mixture food fit for consumption by the cells. For this purpose the cavity inside the heart is divided into two divisions. The blood which returns from the body and intestines enters first the right one, to be pumped for purification to the lungs and charged with oxygen; then only, after it has become fuel fit to be used by the cells, does it flow into the left strong muscle division of the heart, which drives it all through the system. It is but natural that the main pumping-stations (ventricles) should be provided with waiting-rooms (auricles) where the blood waits until the former are through with the previous load.

To recapitulate: The heart is divided into a right and left division, each division again subdivided into a waiting-room (auricle) and a main pumping-station (ventricle). The openings are provided with valves to keep the blood-stream running in the proper direction. All vessels through which the blood runs away from the heart are called arteries, all through which it returns are called veins, both of which grow, by successive division into smaller branches, finally so thin that they are parted from the surrounding tissue only by a very tiny, fine membrane through which exchange of fresh food and oxygen for and waste from the cells easily takes place.

With every stroke or contraction of the heart (systole) a little spot just under and inside of the

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Heart-beat
and Pulse

nipple of the left breast is quickly lifted. This is the heart-beat, the number of which is more conveniently counted by taking hold of the pulse, which represents the little kick given to the arteries each time a heart-beat pumps a new wave of blood into the circuit. The average number of heart-beats in one minute for the adult is 75; for the new-born 120; until the fourth year 100 and from then on until the fourteenth around 80. Some perfectly healthy people have only 40 and others always over 90, peculiarities frequently found in members of the same family.

The cells need more fuel and oxygen for combustion when the body is at work. The heart can get and deliver a bigger supply of either, not only by faster beating, but by pumping with heavier strokes, when each time a greater quantity of blood is moved through the lungs and body. For any ordinary effort, such as common work, a sound heart does not change the number of its beats, as the muscle possesses reserve strength enough to make each contraction more telling; the more rapid gait is accepted only when stronger pumping alone becomes insufficient, which should not happen except when something out of the ordinary is done, for instance, running, or other unusually heavy work. A heart which must immediately beat faster to supply the demands for an ordinary walk or talk is lacking in reserve strength, which is an indication

THEIR CARE AND CURE

that something is wrong, either with the health in general or the heart in particular. Emotional people have a fast pulse on the slightest provocation. Excessive use of tobacco, tea, coffee, or liquor stimulates the heart. Most fevers, except a few which attack the brain, increase the pulse more or less, depending on the general constitution and the intensity of the infection.

For the circulation of a healthy person, a heart the size of his fist, weighing ten to fourteen ounces, furnishes enough power. If abnormally heavy demands are made, the heart grows larger, just as our muscles grow bigger and stronger by regularly repeated exercise. Such enlargement, having to compensate for increased demands, is called "compensatory enlargement or Hypertrophy." It allows a satisfactory life to such people as can not get along with a normal sized heart on account of their exceptionally strenuous occupation, or by reason of obstacles arising in the circulation when the valves are defective or the blood-vessels contracted by substances which should be excreted, but are retained, as when the kidneys are sick.

Formerly physicians became frightened at once when they detected an enlarged heart and valve trouble. To-day they consider them devoid of danger, so long as the heart-muscle keeps strong, and see danger ahead only when the muscle shows signs of fatigue, or what they call "broken compensa-

Size of the
Heart

THE HEART AND BLOOD-VESSELS

tion." Altho a person with a well compensating enlarged heart is fit to work and enjoy life just as well as a normal one, he invites defeat by wilfully undergoing unnecessarily heavy exercise or emotions.

The walls of an over-tired, weakened heart are likely to give way under the pressure of the bloodstream, and stretch and bulge. This is called "dilatation" and may appear on examination like a hypertrophic heart, whereas, in fact, the larger size means only larger cavities with distended walls, a condition which makes rest imperative until the muscle has grown strong enough to stand the ordinary demands of life.

Structure of
the Heart-
muscle

The heart-muscle itself is formed of many millions of single fibers which are closely knitted, and twisted all together at each end in opposite directions. This twist makes the whole much firmer and allows easier traction in both directions, first for closing, then for opening of the cavities. The inside is lined with a smooth membrane (endocard) which offers no friction to the passing blood. A stronger membrane called "pericard" covers the outside and, duplicating, forms a bag in which the heart is suspended by the blood-vessels and protected against infringement of the neighboring organs, the lungs, which are on both sides, and the liver and stomach below. Between the two latter and the heart we find the diaphragm, the dividing membrane between chest and abdomen.

THEIR CARE AND CURE

The supply of fuel for its everlasting work is furnished to the heart by two main vessels, the "coronary" arteries, which, with many smaller branches, irrigate each little fiber. Without abundant nutrition the fibers deteriorate and soon lose their ability to contract. In "angina pectoris," the plague of our well-to-do people, the coronary blood-vessels partially fill up with a chalky substance as in "arteriosclerosis," or they contract under the stimulus of nervousness and improper food, when the heart does not receive sufficient blood and cries in spells of pain and hunger, so that it has to be treated like a starved child and carefully saved every effort until it is strong again. Otherwise, it gives out entirely, as we daily see in the newspapers, by the sudden death of many of our best citizens.

Angina
Pectoris

The question concerning the kind of power which the heart uses for its work is still unsettled. True, each fiber is built of many little disks like an electric column of Volta and an instrument registering electricity indicates that an electric wave is produced at each contraction of the heart, but nobody knows whether this electricity is cause or effect. It is more probable that we have here again that mysterious vital force which, as yet, is to man a closed book. To follow up creation is almost uncanny. A little piece cut from the heart of a chick some time before it breaks through the eggshell, moves on the table, contracts and stretches itself rhythmically and

Motor-power
and Nerves of
the Heart

THE HEART AND BLOOD-VESSELS

with proper care begins to grow like a plant. Every cell at the earliest period of our development is a living thing, with its own rights. In later stages of growth the cells give up their power to move individually for a more centralized form of government. This we can observe on a heart which is laid open to inspection by removal of the breast-bone, or when it has been taken out of the body. It continues to beat for days, if kept under proper environment, and in such hearts we can see directly how, first, the waiting-rooms contract, then the ventricles and, between, a short pause intervenes during which the mysterious power crosses a bridge extending between both. The main power-station is located in the right waiting-room whence the power is distributed all through the heart. To insure the continuity of action, if something goes wrong with the power-conduct, the ventricles, as main pumping-stations, are provided for all eventualities with emergency-motors which begin to work automatically at once when the current does not arrive in due time. When the two motors are at work independently, the rhythm of each is apt to be different; for instance, under such conditions the auricles frequently beat 150 and the ventricles only 30 times in one minute. This happens in "Adams-Stokes" disease, where the bridge connection is disturbed by sickness. The same trouble can be produced artificially by putting a tight ligature around the bridge connection, or cutting it, when auricles and ventricles begin to work at once, inde-

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pendently, in a different rhythm. The instant that we take the ligature away, both beat as normal, the same number of times.

The heart, independent and beating its own pace, could perfectly well take care of the body if the demands on the circulation always remained the same. This is impossible, as every organ needs more food, or blood, when at work than when at rest, the brain when we think, the legs when we walk, the intestines for digestion, etc., etc., and a heart without nerve-connections with the rest of the body could never know or satisfy the ever-changing demands. For this reason the automatic motors of the heart are connected with every least little part of the body by two sets of nerves which bring orders for more or less blood supply, for faster or slower pumping. The messages for slowing down of the motors are sent over the vagus nerves, for speeding up over the sympathetic nerves.

Not only for work, but for thoughts, the current of blood has to be changed, and the strain would be overwhelming for the heart without the active co-
operation of the arteries, from which the heart really originated. Both remain, all through life, subject to almost the same diseases and cures.

Description of
Arteries

Each artery is a model of efficiency and simplicity, being built much the same as the heart. On the inside is a smooth membrane, then follow two layers

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of muscle, one circular to contract, the other lengthwise to widen the channel. The outside is covered by a protecting skin. Nerves are distributed all along, which, as mentioned, communicate with the heart by way of brain and spine, and take and bring orders for more or less blood, and at once see to it that just enough room is ready in the arteries for the demanded supply.

The muscles of the arteries assist the heart to circulate the blood. Every time a heart-beat pushes a new wave of blood forward, the elastic muscles become somewhat stretched and, when contracting to the unstretched size, add to or even up the pressure. In all probability the arteries have their own rhythmic contraction and relaxation and work together, not dependent entirely on the heart. The latter tires quickly and a jerky pulse indicates that the arterial action is wanting, as in arteriosclerosis when the walls of the arteries are changed to unelastic brittle tissue or in some forms of blood-poisoning when the walls are paralyzed.

It is obvious that arteries whose walls have lost their elasticity are more likely to break or bulge under the pressure of the blood-stream when bags, "aneurisms," are formed. These aneurisms are dangerous, as they burst easily.

This is all the layman needs to know about heart and blood-vessels. The public is accustomed to being told that somebody suffers from valvular heart-

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trouble and books describe, at great length, the different valves. In sum and substance, the circulation represents the result of muscle-power of the heart and blood-vessels on one side, and the resistance in the circuit on the other. True, disordered valves render the work for the heart more difficult, but we deal here in greater detail with the heart-muscle because, first, every person who dies from valvular heart-trouble really dies from inefficiency of the heart-muscle and, second, while we possess no means for changing the valves, there are many ways for keeping and making the muscles of heart and blood-vessels strong enough to overcome most other ailments, thus producing a circulation sufficient for a comfortable life.

III

THE SICK HEART

1. **Wrongly built congenital.**
Of poor material (inherited).
2. **Heart Diseases which follow:**
 - (a) **Diphtheria**—motor nerves.
 - (b) **Rheumatism**—valvular heart trouble, endocarditis, pericarditis.
 - (c) **Syphilis**—endarteritis, aortic valve and muscular heart trouble (angina pectoris), aneurism, arteriosclerosis.
3. **Disturbances arising when blood does not receive its proper constituents:**
 - (a) From the thyroid gland (Grave's disease).
 - (b) From the suprarenal glands (Addison's disease).
 - (c) About puberty, woman's and man's critical age, genius and genius.
 - (d) Generally impoverished and overfed blood.
4. **Harm done by over-doing and under-doing.**
5. **The tremendous influence of the mind on heart and blood-vessels (presclerosis, arteriosclerosis, premature old age).**

III

THE SICK HEART

O, what a pity that every child is not given an opportunity to learn from the heart the great lesson for health, happiness, and citizenship: that life demands the harmony in action of all its constituents and that discord and disease must necessarily follow if we develop on one side and on the other neglect any part, as if it were unimportant to the whole.

During the last few centuries scientists have confined the function of the heart to the pumping of blood. Previously, for thousands of years, the heart was held responsible for a variety of pleasant and unpleasant emotions, as proven by expressions to be found in all languages, like "broken-hearted," "heartburn," "heartsick," "heart's-ease," "sweet-heart," "lost heart," "bleeding-heart," etc. Our forefathers observed correctly that whenever anything expressed by the foregoing terms was experienced, the heart changed its action and, taking effect for cause, they held the heart responsible. Indeed, when we define health as the cooperation of all the vital organs in a normal state, we have in the heart the finest indicator if anything is anywhere wrong, so much so, that even the sins of our ancestors will be found to have left their mark.

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Inherited
Weak Heart

What is covered by clothes, the skin and the bones, may possess exactly the same family resemblance as does the face. A narrow chest may be inherited from a grandfather, just as well as a large nose. So may the material of the heart-muscle possess the same family peculiarities as tissue which gives color to the eye. Diseases are hardly ever, heart diseases never inherited. The disposition that proceeds from a poorly configured chest, however, and the poor stuff from which heart and blood-vessels are made, is inherited. Chemical analysis has shown that muscles which look exactly alike may so vary in worth as to be as different as may two pieces of steel. By very minute examination, certain chemical peculiarities have been traced through many generations of the same family. We are all a continuation of our ancestors; their life and health would entirely determine our own if we could not change ourselves by different manners of living and so become different people.

With congenital malformations and the results of excessive strain excepted, there exists no heart disease which originates in the heart itself; all start somewhere else in the body. This is a fact to be remembered in prevention and cure.

Long-continued fever or long rest weakens the heart, as they do any other muscle. The parasites which cause sickness circulate in the blood and have access to the heart. Altho every one of them occa-

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sionally attacks the heart, the most of them find more favorable soil for growth somewhere else. But there are three infectious diseases in which we must always be on the lookout for trouble: diphtheria, rheumatism, and syphilis.

Diphtheria is likely to weaken the heart-muscle and to paralyze its nerve-fibers. From the beginning every precaution must be taken to save and reinforce the heart and, during convalescence, heavy strain must be avoided, since it involves the danger of collapse.

When we say rheumatism affects the heart, we mean its bacteria. Inflamed, swollen joints, some forms of sore throat, of pleurisy, appendicitis, and ulcerations are all brought on by the same germ, which finds on the uneven surfaces of the tonsils its favorite hiding-place. From this point it attacks every part whose vitality is lowered, doing the most permanent injury when settling on the fine membranes which cover the valves of the heart.

Effect of
Rheumatism
—Valves

A rheumatic joint can be kept quiet and so be, after the rheumatism is cured, just as good as it was before. The heart must keep on moving and beating and so the acute swelling of the valves may change to a permanent thickening after the rheumatism is cured. The thickened valves shrink like scar tissue and frequently become too short for the openings they are to cover, a condition called by physicians "insufficiency of the valves." Denuded

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of their normal protective membrane, they stick and partially grow together until they permanently close a part of the opening, when the blood can not pass in a normally sized stream (stenosis). In the previous chapter we saw how nature may overcome valve-defects by making the heart-muscle so strong that it can keep up a good circulation in spite of them.

The danger in a disease depends on the more or less vicious character of the bacteria and the constitution of the patient, who offers a more or less favorable soil, or a stronger or weaker resistance. The bacteria of rheumatism can become so vicious as almost to honeycomb the heart with abscesses. This result is rare, and very dangerous when it occurs. Oftener they settle on the outer surface of the heart and cause pericarditis, filling the pericardial-sac with a yellow liquid, which generally is absorbed in from four to six weeks, or must be withdrawn by inserting a hollow needle. Pus may form, so that the heart, pericard, and ribs would be likely to grow together and make an operation necessary in order to free the heart from surrounding tissues to allow unobstructed action.

Rheumatism is the most common cause of valvular heart trouble. Altho we are able with present-day treatment, to cure, inside of a week, a case of rheumatism which lasted formerly two months or longer, we yet possess no means for safely protecting the heart during even a very short spell of rheumatic sore throat.

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Syphilis

While diphtheria is most likely to strike at the nerves and rheumatism at the valves, syphilis weakens the heart-muscle in a round-about way by reducing its blood-supply, which can not pass the syphilitic arteries in normal quantity.

The blood-vessels of a syphilitic person snow under the microscope little corkscrew-like, living, moving things, called "spirochætæ." It would take many thousands to cover the point of a needle and, while no patient can feel them, they have power enough to destroy the walls of the blood-vessels and to transform them into brittle chalky tissue, through which the necessary changes of food and waste between cells and blood can not take place. Every organ so affected suffers from insufficient nutrition and is unable to work as well and as long as normally. When the arteries of the brain are syphilitic the memory becomes poor, mental work produces fatigue quickly and the patient complains of dizziness and headache. Hardened blood-vessels in a leg allow walking for a short distance only. Then, after a few minutes of rest, the walk may be continued, only to be interrupted again after a little while by pain and weakness. Poorly nourished muscles and nerves make their hunger and exhaustion felt by pain and fatigue.

When the coronary arteries which nourish the heart are syphilitic, the muscle gradually changes to a fibrous tissue, which needs less blood, but has no power of contraction; then the heart gives out

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at the least demand on its strength, and painful cramps in the left side of the chest, oppression and the feeling of impending death, symptoms of genuine angina pectoris, make life miserable. The starved heart does its best, goes to the limit of its strength, and then, after hours, days or years of vain effort to recuperate, gives out entirely and suddenly stands still.

On the roughened surfaces of the syphilitic arteries the stream of blood is retarded. The blood may coagulate in little clots, which are likely to cause an obstruction and cut out the circulation from parts beyond it. If that happens in the brain all those parts of the body which the cut out district supplies with nerves become paralyzed, the center of speech being quite frequently affected. Fortunately, syphilis is to-day with most of its consequences, entirely curable.

For years it was a riddle why people who had not suffered from any disease of the heart, should, seemingly without any reason, have a pulse of 100 or more a minute, a blood-pressure much higher or lower than normal and should suffer from a great variety of disturbances in the circulation. To-day we know that the component parts of the blood have to exist in the right proportion to satisfy each and every cell, and that, altho a wrong blood mixture may satisfy most parts of the body, it is apt to upset any one, for instance, the heart, which needs a cer-

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tain substance that the blood either does not contain, or has in quantity larger than normal.

The secretions of many glands are absorbed by the blood. When the thyroid gland, located in front of the neck and known as goiter if enlarged, is secreting too freely, the heart action becomes accelerated and the whole nervous system excited. This happens in a sickness called "exophthalmic goiter" or "Grave's disease," in which a competent surgeon may remove, without the least danger, a part of the gland. Its secretions then become less and the nerves and heart almost at once normal. When the thyroid is absent or does not secrete enough, the pulse is slow, the nerves dull, and the patient grows better only when he uses as medicine the same gland taken from an animal. The same prescription is effective for people who wish to defer old age, as the thyroid, by means of the peculiar kind of iodine it contains, keeps the blood-vessels elastic.

Grave's
Disease

On top of the kidney is a little organ, called the "suprarenal gland," the function of which scientists did not understand for ages. To-day we know that if it does not exercise its proper function ("Addison's disease") heart and blood-vessels act as tho tired from lack of stimulation. When it secretes too much, the opposite happens, the blood-vessels contracting and making it difficult for the heart to pass the proper blood-supply.

Addison's
Disease

Another important substance is given to the blood

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Puberty and
Change in Life

by the regenerative organs. The ovaries, at the time of the first menstruation, add that substance which makes the skeleton, breast, and character of a young girl grow distinctly feminine. Thirty-three to thirty-eight years later the ovarian activity and menstruation cease, when the body loses its readiness for child-bearing and uterus and breast change to a characterless or fatty tissue.

The entrance and exit period of the ovarian secretions, puberty and menopause, have no effect on the physical condition in general of a woman living in a normal state. In our present-day civilization, when the girl has to spend most of the day with studies indoors, sitting with nerves kept tense for hours in an effort to catch the meaning of a teacher's lesson, eating as much as her time allows and not as much as a sound body needs, puberty becomes a great trial for the heart, which finds it a hard and often an impossible task to supply, with blood impoverished, sufficient nutrition to the body, which at this period starts to grow more rapidly.

During the menopause, on account of the ceased menstruation, a surplus of blood and energy is in stock, and in the effort to find an outlet, often causes palpitation, congestion, restlessness, etc. When some activity is not systematically substituted, the body and heart become weak and fat just at a time when they have to adjust themselves to a new order of circulation on account of the cessation of the menstrual flow. For a woman whose perfectly

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natural sex-instinct has been cheated of its due satisfaction, the nervous system adds its share to the heart's discontent during the menopause. It is unfortunate that nature demands man as a necessary ingredient in a woman's life; without a man, many women grow peculiar and become victims of extremely stubborn heart- and stomach-troubles, which, fortunately, disappear after the fifty-fifth year.

Boys who squander the product of the regenerative organs around the puberty age lack sufficient impetus for a harmonious development; some part of their body, be it heart, nervous system, or muscles, will not grow in proper proportion to the rest. Later on as men, they are tolerably fit for life, but seldom altogether harmonious personalities.

Between the forty-eighth and fifty-fifth year a great deal of male energy is set free; it had previously been reserved for the regenerative functions. Many foolish men mistake this temporarily changed distribution of energy as a kind of "second wind" with which to pitch anew into the battle of life, only, inside of ten years, to break down with an exhausted heart. At the forty-fifth year, at the latest, the heart loses part of its elasticity, the same as the eye, and everybody who tries at that age to work, smoke, drink, exercise, etc., etc., as tho he were forty, risks hurting his heart beyond the possibility of repair. Wear and tear takes place in the very best built body. The blessing of feeling young can be made lasting only by acting as becomes one's age.

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Nature provides a long autumn to man's life, one full of opportunities to enjoy the fruits of our past work, to carry out ideas the mind produced in youth and to continue in channels the brain has been adjusted to. Dr. Osler called attention to the close relationship of genius and genius, of sex and productive power, when, in the study of the life of great men, he found their great ideas always born in youth, but often developed and carried out after their forty-fifth year had passed.

Impoverished
and Overfed
Blood

Blood altogether impoverished lowers the vitality of the heart as well as that of the rest of the body, and to make the strain on the former greater, the poorly nourished cells seek from the center of nutrition in the brain a greater sufficiency of food. The heart is then given orders for more frequent delivery by quick action. Many patients with anaemia, chlorosis, and other blood-diseases become well only when, by keeping quiet, they make few demands on the heart, so that it may have rest and the time to build up its absolutely necessary reserve power.

On the other hand, a blood that is too rich renders the circulation difficult. The blood normally consists of a nutritive liquid called "serum," in each millimeter of which are four to five million oxygen-carrying red corpuscles and five to seven thousand white corpuscles, which are the scavengers of the body and police the blood against bacteria. It necessarily means more work when the heart has to move blood

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which is much heavier than normal. Until sixty years ago physicians were in the habit of treating patients by blood-letting. From its color, consistency, and coagulability they formed, and often correctly, an opinion regarding the outlook for recovery. Later this method came entirely into disuse and physicians forgot the importance to the circulation of the blood's consistency, until it was recalled to their mind by the good results obtained for heart, brain, and the whole body when the blood was made more fluid by food and treatment.

From reading of various places where trouble may arise, the reader may receive an erroneous impression that he should watch parts of his anatomy of whose existence he has hitherto had not the least idea. I could have avoided giving this impression by simply stating the fact that infectious diseases and bad blood may do injury to the heart. I touched, intentionally, upon every single part in order to show the reader what a marvel he is—and how foolish if he expects to secure health by considering a few seemingly important organs, while everything depends on the harmonious working of them all. For consolation I will give here, in one word, a protection against most ills that can befall us—moderation, not only in pleasure, but also in work. We surely expect God, in the other world, to reward virtue differently than vice; in this world he simply insists on moderation and deals out practically the same finish to the

Moderation
Versus
Excesses

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man who is too good as to the one who is very bad. For instance, anybody who works from his fourteenth year twelve hours daily in an office, must expect to have a weak heart and a distorted chest. These will cause almost the same inconveniences as are experienced by a man who, born to weigh 180 pounds, increases his weight, by laziness and too much food and drink, to 250 pounds. The thin, flabby heart has practically as little resisting power, in case of sickness, as a fat heart; the disadvantage of the latter is that it must continually do an unfairly large amount of work, the 100 pounds of overweight meaning the same strain on the system as if a normally-sized person carried continually 100 pounds of lead on his back. We refer the reader here to the extremely important Chapter VI, where I deal at length on the danger arising for heart and blood-vessels from the habit of eating meat in excess of the requirements of the body.

In a special chapter I will discuss the necessity of being moderate in rest as well as in exercise. Often parents forbid to their children football, boxing and other forms of strenuous exercise, not knowing that by so doing they are likely to stunt their boys' and girls' future. Body and mind can be led up gradually to achievements which they can neither reach nor stand when unprepared. Parents are afraid of over-taxation of the heart which generally is the result of too little previous exercise; it happens almost only to those not rightly trained. The un-

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trained man is likely to break down at any time. An unexpectedly heavy strain can not always be avoided and there exists a close relationship between mind and body.

If taken to excess, coffee, tobacco, and alcohol are enemies of the heart, while, moderately used, none of them, or all combined, has prevented men from producing the best we have in art, science, and literature.

All that we have mentioned up to this point is not sufficient to explain why the heart often gives out prematurely in people who have led in every way an exemplary and healthy life. The reason is found instantly when the influence of mind on heart and blood-vessels is investigated. Incidentally, an explanation is here given of Christian Science, as it cures many patients who could not be cured by physicians.

Influence of
Mind on Heart
and Blood-
vessels

Everybody knows people who blush when ashamed, who become pale and cold when afraid, who are troubled by the bladder and the bowels when they become excited, or are in suspense. These conditions depend, in the main, on the contraction and relaxation of the blood-vessels and are an exaggeration of what happens in a lesser degree to all of us. With a magnifying glass and reflected light one can see the blood-vessels in the background of the eye change with every emotion. To the layman the same process can be demonstrated by an apparatus called

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a plethysmograph. This is a glass cylinder filled with water, which can be fastened with a rubber cuff around the arm so that the water and arm fill it entirely. Connected with the cylinder is a stand-pipe in which the water can rise and fall, depending on the room it finds in the inside. When cold water is thrown on any part of the body outside of the cylinder, at once the water in the indicator-pipe falls and then rises, as first the blood-vessels contract and later dilate, making the volume of the arm first smaller and then larger, leaving more or less room for the water in the cylinder. After waiting a few minutes, the same rise and fall in the stand-pipe and the same contraction and relaxation of the blood-vessels take place when the person is made to believe that cold water will again be thrown on the body without such a thing really taking place, showing that fright may have the same effect on the body as a real happening.

During the French Revolution a thirty-year-old nobleman was condemned to die by the guillotine. The night before the execution he had conversed with other prisoners until half past three in the morning, when he fell asleep. Shortly before he was to start for the place of execution, a friend came and, wishing to awaken him, touched the back of his neck lightly with his finger. The nobleman opened his eyes for a fraction of a second, made two or three jerky movements with his legs and then was dead. None of his friends and relatives had

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seen any signs which gave the least suspicion of his having been in danger of sudden death from internal disease. It was the consensus of opinion that the touch of the finger at the moment of awakening, after the mind had been directed for days and weeks on the approaching death, gave the sensation of the knife of the guillotine with the same fatal effect. However, as no post-mortem was made, skeptics might say the nobleman died from a stroke of apoplexy.

The following case was reported in 1912 by a professor of obstetrics in the University of Berlin, and is, beyond doubt, true: A young woman, married for several years without having children, but very anxious to have a baby, got a fixt idea that she was pregnant, her breasts became congested and, at the ninth month, secreted as if she had really borne a baby, altho she had menstruated regularly and had never been pregnant.

An experiment which proves, beyond doubt, the mind's power over the circulation, is the following: If one fastens a blood-pressure apparatus around the arm of anyone who performs a mental or bodily task to which he is not accustomed, the blood-pressure will increase out of proportion to the work done, sometimes as much as when performing a task ten times more difficult, but to which he is accustomed. After the new kind of work has been done several times, and the person becomes used to it, the disproportion between work and blood-pressure disappears.

With an instrument we can measure the distance

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which two points in touching the skin must be apart in order to be felt as a single point, or as two separate points. By calling attention to the spot before touching it, the sensibility increases on account of the greater influx of blood. As the flow of blood increases to parts to which attention is directed, we may prepare the soil for the growth of bacteria by watching, during an epidemic, the part in which the disease most commonly settles—for example, when cholera or typhoid are prevalent, the intestines; when diphtheria, the throat, etc., etc. That is the reason why people who are most afraid fall the easiest victims. The influence of a thought on the circulation can be shown experimentally by putting a person comfortably on his back on a board and balancing the board in the middle, so that it moves like a see-saw. When a person so lying plans or figures, the end where the head lies becomes heavier and sinks; when his thoughts are concentrated on his feet, that end is lowered as the feet become heavier.

On the other hand, we find the function of any part which works automatically and independent of our will is stopt or retarded when we concentrate attention upon it. When we hit the knee just below the knee-cap, the lower leg, in a healthy person, jerks. Calling attention to the fact that such a thing will happen is sufficient to prevent, in nervous people, this perfectly normal reflex. By diverting attention, the reflex at once takes place. Here we have an explanation of many nervous women who

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have normal confinements after they become Christian Scientists, when previously, they had had to undergo operations at the hands of physicians, who through their very solicitude, called consciousness, to the action, and so paralyzed the motion of the uterus, which is the normal reflex for delivering a child. In the same way, we may induce inability to urinate, constipation, or other troubles, by worrying about bladder, bowels, etc.

Envy, depression, high-strung attention, or fear can be recognized without seeing the patient, merely from his pulse and blood-pressure. With a little reflection, every one at once will realize the controlling influence which the mind has over the blood-vessels of the sex organs. Sensitive patients with fever generally have a rise in temperature after a visit is made to them, as every hospital physician knows, if he keeps exact records of temperature. The sick heart of a good Catholic beats more regularly after the visit of his Father Confessor.

To mention one more and extreme example of the tremendous influence of the mind over the blood-vessels, let me cite the well-proven fact that a red spot like a burn can be produced, when we tell a deeply hypnotized person that a finger when touching the skin is a burning match. The spot becomes red by congestion. Every one may draw from this his own conclusion as to what mischief a morbid imagination can work and as to how much help

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can be given by influences which set the mind at rest.

It must be admitted that, in theory, the mind may even control the growth of a tumor, as, by regulating the width of blood-vessels, it may cut the tumor out of the circulation and starve it to death, or, on the other hand, make it grow faster by directing attention and congestion to it. The mind can influence the body the same as a poison or as it is affected by the thyroid and suprarenal gland; it can widen the blood-vessels, as the former does, and almost close them, as the latter does, with the same effect on the health.

The bowels and bladder in nervous people make often frequent and imperative demands for relief; the urine sometimes passes like water in large quantities, sometimes is very yellow and scanty, so that much waste is retained by the system, which may cause discomfort, gout, and other sickness. The relaxed or contracted state of the blood-vessels causes the difference in the quality and quantity of the urine filtered. It is interesting to note the experience of people who take morphine. When the morphine is taken away from them, they feel unhappy and the kidneys work very little, but once more act freely when the patient again takes morphine and feels happy. The drug itself has no direct effect on the kidneys.

Very few people who worry and fret have sound kidneys when fifty years old, especially when they

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are heavy eaters. French physicians call the condition preceding thoroughly developed hardening of the blood-vessels, "presclerosis," which, in most cases, means nothing more than blood-vessels spasmodically contracted by nervousness or inappropriate food or both.

In people with stability of purpose and action, the blood-vessels have more rest and remain in good condition much longer than in those who are inconsistent, and restless, and who one minute want one thing and the next, another thing; who love to-day and hate to-morrow, but for no sufficient reason; who become enthusiastic and indifferent, excited and deprest and change their plans with the weather or with the expression on the faces of others. A continual contracting and relaxing is going on in their blood-vessels which, at the age of fifty, show all the symptoms of old age.

The influence of the mind on the circulatory apparatus is a fact on which not enough stress can be laid. Arteriosclerosis was considered until recently a condition peculiar to old age, syphilis, tobacco and lead-poisoning, altho people over eighty years old were known who showed no traces of it, and others who at the age of thirty had blood-vessels like clay pipe-stems, in spite of the fact that they had never used tobacco in excess, never had syphilis, or lead-poisoning and had abstained from everything injurious. To-day we know that arteriosclerosis often

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represents the worn-out condition of blood-vessels which had been overworked by the continual pulling on their muscular walls by an emotional and restless mind.

By following the life of those who have reached a useful old age, we find some who have drunk whisky, others who have not; some who recommend tobacco, others who condemn it as a poison; some who recommend much sleep or meat, and others the opposite. The manner of life varies greatly, but all who live to be old have, in common, equanimity and a habit of taking things for what they are really worth; they do not worry, grieve, or become excited more than a reasonable conception of life warrants. Nature has made a cruel jest by allowing good-for-nothing idiots to live as long as the philosopher, as neither is much affected by anything.

Many cases are known of patients who, all their lives long, were compelled to have their food especially prepared for them, on account of stomach trouble, who never went far from a physician on account of distressing spells of palpitation of the heart and shortness of breath, and yet who became able to digest the most indigestible food and were free from every symptom of heart-trouble, when, with advancing age or from other causes, their minds grew dull and feeble and they were unable to fret and worry.

But it would be wrong to believe that the mind

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is the only ruler of the body's destiny. Diet, exercise, general hygiene and infection are of great importance. On the other hand, it is proven by exact experiments and observation, that the mind has the power to interfere with the function, the circulation, and the nutrition of any organ in the body.

The following account of a certain patient shows how the same disease may be caused either by a sick organ, or, in an even more dangerous form, by the mind alone. This man suffered from Grave's disease; the abnormal secretions of the thyroid gland made sugar appear in the blood, a diseased condition which is called diabetes. Part of the thyroid was cut away, the sugar disappeared, and the patient became well. The man passed nine years in perfect health. Then there was a run on a bank of which he was president. The great excitement that followed was alone enough to disturb sufficiently the whole system so as to cause sugar to reappear in the blood. The patient died in the following year.

Not every worrying, over-sensitive, inconsistent person becomes a victim of organic disease, premature old age, arteriosclerosis, etc., any more than consumption always follows a bad cough. A predisposition must be there; it must have been given to the circulatory system by inherited inferior material and an unhygienic life, excesses in work, in the use of alcohol, tobacco, and in over-indulgence in animal passions. Many people, especially women,

THE HEART AND BLOOD-VESSELS

suffer from so-called cardio-neurosis and angio-neurosis (nervous heart and blood-vessels) and often improve with age. They were born without a predisposition and the mind leaves the circulation in peace after the change of life is passed.

IV

THE PHYSICIAN'S EXAMINATION AND WORKSHOP

1. Why the heart must be examined in every disease.
2. The distinction between a nervous (functional) and an organically sick heart.
3. The methods of examination:
 - (a) Percussion.
 - (b) Roentgen (X) Rays.
 - (c) Auscultation.
 - (d) Pulse-feeling and pulse-writing.
 - (e) Blood-pressure.
 - (f) Electrocardiograph.
4. How to find the real worth and working ability of the heart, irrespective of its anatomic structure.

IV

THE PHYSICIAN'S EXAMINATION AND WORKSHOP

The heart must receive a thorough test, no matter what a patient may complain about. It is of importance to know if all organs are receiving the proper amount of blood through a good circulation. In sickness we should be sure that the heart can stand unassisted the strain of fever, pain, and operations; otherwise, it should be reinforced at once.

From what the patient himself may say, it is impossible to decide whether his symptoms are due to an organic disease, which means to a real change in tissue, or bacteria, to poorly digested food, or whether his trouble is solely the result of poor circulation, due to a weak heart. No organ can act properly when it does not receive its right supply of food and oxygen and is filled with waste which the blood-current should have carried away.

Every symptom of neurasthenia may, but need not, find explanation in the condition of the heart and kidneys. A physician who keeps this possibility in mind succeeds sometimes in curing patients who previously were treated but not improved. Unfortunately, a slight weakness is often overlooked if not

Heart,
Nervousness,
and
Endurance

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especially searched for; in consequence, the patient will not enjoy any continuity of good health until his heart is properly treated. When men with good muscles and the best intentions complain about lack of endurance, the condition of the heart will often give a solution of the contradictory situation.

Distinction
Between a
Functional and
Organic
Disease

A physician who desires to treat any organ properly must, above all, ascertain if the trouble is organic or nervous (functional). In an organic disease a change from the normal is found in the tissue; in functional diseases a change in the tissue is not found. The organ looks perfect, but its work, its function, is wrong.

An example taken from another organ—the stomach—will make the difference between organic and functional diseases perfectly clear. The food is digested in the stomach by juices secreted by the gastric glands. When the glands are destroyed, the food is not digested and we have an organic disease. We have a functional disease with exactly the same symptoms when the glands in the stomach are absolutely perfect but do not act because the nerves, which direct the secretions, do not make them work. The difference, from the patient's standpoint, is that in a functional disease there is a possibility and great probability, of restoring the action of the stomach entirely, after we succeed in setting the nerves to work; while, in an organic disease, the destroyed glands never grow again, which makes it forever im-

THEIR CARE AND CURE

possible for the stomach to become sound and act as normal. In organic diseases, the treatment must be directed to the organ itself. For instance, the stomach must be supplied with medicines to take the place of the gastric juice from the destroyed glands, while in functional trouble we must remove every obstacle and interference in or with the function of the nervous system and leave the stomach alone.

When we remember how the nerves of the heart connect with every blood-vessel in every part of the body, from the brain down to the toes, it is at once clear why trouble in any other part of the body is apt to interfere with the heart. An irritation of the digestive organs, etc., more or less influences the pulse, altho shortness of breath may be brought on from this source by gases which press upward and obstruct the space for heart and lungs. A close relation exists between pelvic organs, the sex instinct, and the heart, not to mention again the immense influence of every emotion. A father who is worried about his son, a woman who is constipated, a widow who is starving for the love of her husband, a boy who is in love, and a girl who eats a poor lunch, are all likely to complain about the same seemingly alarming heart-trouble, which, being of nervous origin, disappears after the causes are remedied.

In such cases there would be no sense in treating the heart; in fact, it would harm, as, by giving the patient an impression that it is diseased, he would

THE HEART AND BLOOD-VESSELS

be furnished with new cause for worry. Such people pay too much attention to their hearts and succeed in training their nerves to report to their perception what an average person does not feel; they become conscious of what is only the normal action of the heart, but are disturbed by it, altho it is exactly in the same condition as in a perfectly sound person, in whom it goes on continually and absolutely unnoticed. Such patients often wish to keep quiet as, with exercise, the heart action naturally becomes a little more intense and, to them, disturbing. What most of them really need is plenty of outdoor exercise, appropriate work, and diversion. It is interesting to note how a nervous heart improves with continued exercise, altho it may have caused trouble in the beginning. Walking up a steep mountain causes palpitation and shortness of breath during the first two hours, but the nervous heart becomes perfectly normal during the third and fourth hour of climbing. This never happens in the case of a patient with an organically sick heart, who feels worse the farther he climbs.

Patients with functional heart-trouble are very frequent visitors to a doctor's office, complaining about palpitation and irregularity of the heart, a feeling of pulsation all over, suffocation, especially at night, pain in the left side, cold hands and feet, panicky fear, etc. It is as logical to ascribe to the heart every sensation in the left side, as to the brain every headache, or to a diseased kidney every back-

THEIR CARE AND CURE

ache. The very closest examination usually shows a perfectly sound heart, but the patient must be reassured again and again that all his heart symptoms are the result of nervousness and will disappear when right living and thinking have made him well in every other direction.

The really organically sick and grossly inefficient heart is readily diagnosed. The signs are evident. The number of beats increases, as such a heart needs one hundred and more of its weak contractions to circulate the blood, which previously could be moved with sixty or eighty normally strong pulsations. Shortness of breath is complained of when walking, talking or exercising. Blood stagnates in the distant and lowest lying parts from which the return flow is the most difficult; in the feet dropsy sets in, later spreading all over the body; lips and fingertips show a bluish tint. Every organ is badly impaired, the liver and kidneys are inactive, the digestion is sluggish, the mind drowsy. The patient is unable to remain in bed, is forced to spend day and night sitting in a chair, when death seems to be imminent and welcome to end his misery. But in the vast majority of cases all symptoms disappear with the right treatment, and danger of their recurrence remains only when the patient does not take good care of himself. With each reappearance of the symptoms, the treatment, unfortunately, helps less and becomes, finally, entirely inefficient.

THE HEART AND BLOOD-VESSELS

An organically sick heart does not always cause symptoms. They appear in most cases only when its muscle weakens. In fact, a wrongly built heart is often detected by chance, as, for instance, during a life insurance examination of a patient who feels perfectly well. Until sixty years ago such persons often died of old age without ever knowing that their heart was wrongly built, nor did physicians even suspect such trouble.

Men of a so-called strictly scientific turn of mind have always been inclined to deny everything that at the time can not be proven, seen, or heard and to forget that their own generation, with more perfect instruments and a better understanding, finds things to be true that a few years before were considered fairy tales. This mental attitude explains why heart diseases were considered rare until the beginning of the last century; there had existed no instrument to detect them.

Percussion
and Roentgen
Rays

The diagnosis "heart-disease" became frequent; any deviation from the normal was at once erroneously considered dangerous when physicians applied to the human chest the commonplace test of a tapping finger, which makes a different noise on a chest as on a barrel filled with some solid or liquid from what it makes on one filled with air. When the chest is hit lightly with a little hammer or with a finger, we hear over the air-filled lungs a different sound from that over the blood-filled and more solid

THEIR CARE AND CURE

heart-muscle. The tapping, or light hammering, on the chest, which helps us to find the size and location of the heart, is called "percussion." This method has been perfected in recent years, since we can check up our findings with the picture disclosed by the X-rays. X-rays show the heart and its action plainly, and allow us to take its photograph, exact tracing, and kinematograph. They furnish us to-day with excellent assistance in making a correct diagnosis of most forms of heart-trouble. In the second chapter I discuss the meaning of an enlarged, or "hypertrophic," heart. An exceptionally small heart is always connected with general weakness and is just as much a part, as a cause, of sickness.

After finishing with the "percussion," the physician generally puts his ear, or an ear-trumpet, ("stethoscope") on the patient's chest to hear (to "auscultate") the heart's sounds. The sound made by running water changes with the pressure and the width of the outlet, a rule which holds good for the heart. When the valves open more or less than normal and the pressure is stronger or weaker, the sounds differ from those that are characteristic of the normal heart. As the location of each valve is known the seat of the defect may be easily located.

The general appearance of the patient, the condition of the tongue, pulse, and drawn blood, decided for the old-time physician the patient's outlook and

Auscultation

Pulse and
Pulse-writing

THE HEART AND BLOOD-VESSELS

treatment; laboratory tests, auscultation, percussion, X-rays and almost every other means used in present-day examinations were then unknown. Big books written at the beginning of the last century dealt entirely with the pulse. Since then the pulse has lost much of its significance in diagnosis, but has kept its importance in decisions regarding the probable recovery. The pulse gives the number of heart-beats, their strength, and rhythm, and, as the pulse of a vein depends on the contraction of the auricles and that of an artery, of the contraction of the ventricles, so can we ascertain if both work in harmony and right succession when we feel a pulse at the same time on a vein and on an artery.

The best trained finger does not succeed in reporting all these facts to the brain distinctly enough to rely on them as indisputable facts. They can be recorded, however, by an instrument called the sphygmograph, which is a little metallic spring with a lever two or three inches long. The metallic spring is bound over the pulse and the lever writes the least little motion on a piece of paper moved regularly in front of it. Such tracings can be carefully studied and often assist in leading to the right diagnosis and treatment.

Blood-pressure is measured by putting around the arm a rubber hose into which air is pumped. The rubber hose is connected with a dial which indicates the pressure. As air is forced into the hose,

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the arteries of the arm are gradually compressed until the pressure of the hose is sufficient to close the blood-vessels entirely; the pulse on the wrist then disappears. At that moment the dial is looked at and the blood-pressure is found to be one hundred or two hundred, as the scale may indicate. Normal pressure in the arterial system is equal to a column of mercury averaging 100-120 millimeters; any much higher pressure kept up continually means increased wear on the heart and blood-vessels and is commonly found in arteriosclerosis. The pressure is changed by age, food, emotions, bowel action, etc., and the physician has to use discrimination in order to draw correct conclusions. At present the danger of high blood-pressure is often very much exaggerated.

The fact has long been known that electricity is always present in the contracting muscle—whether as cause or result has not yet been decided. At any rate, we get an exact report of the time and kind of the muscle's contraction by watching an apparatus that indicates its electricity. In recent years science has succeeded in constructing an instrument of this kind for the heart, called electrocardiograph. It registers three characteristic phases—the first during the contraction of the auricles, the second as the contracting wave runs down over the bridge conduct to the point of the heart, and the third during the final effort of the main pumping-station (the ventricles) to press the blood into the

Electro-
cardiogram

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circulation. Many heart diseases can be diagnosed from their electric tracings, especially those affecting the power-conduct between the auricles and ventricles. The electric waves are very minute and must be magnified and photographed in order to become distinct to the eye. But they are so characteristic that they can not be confused with anything else of the kind, even by an inexperienced observer.

*The Only
Reliable Test
of the Heart's
Strength* All these instruments show only how the heart looks and acts at the moment of the examination. In the vast majority of cases, we learn nothing about the heart's vital energy, endurance, and ability to take care of the body. In short, we do not receive any answer to the all-important question: what is the patient able to do, and does his heart allow an active and long life? Instruments can not always answer these questions. Structural defects in the heart—unlike those in a steam-engine—can be balanced by increased vital energy and strength of the heart-muscle, while a normal-looking heart may lack in power and give out under increased pressure induced by sickness, excitement, or work. This corresponds with the fact that the broken arm of a strong man, even when mended wrong, may hit harder than the well-rounded arm of a weakling whose arm never was hurt.

The value of a heart is found by ascertaining its working capacity in physical, mental, and emotional tests; by watching, for instance, how walk-

THEIR CARE AND CURE

ing, talking, figuring, or an excitement acts on the pulse and respiration. The quality of the sleep soon after an effort has been put forth and the general condition a day or two after, are significant. These tests have conclusively shown that the value of a heart corresponds to its working ability, and not to its size and sounds. It may be good for many years of an active and happy life, in spite of structural defects.

V

PREVENTION

HOW CAN I PROTECT MY OWN AND MY CHILDREN'S HEALTH?

1. The commonwealth:

- (a) The best education is the best prevention.
- (b) Medical school inspection.
- (c) Health departments and research institutions.
- (d) Sanitary legislation.
- (e) Welfare legislation.
- (f) The stamping out of city-grown hotbeds for crime, infant mortality, and tuberculosis.

2. The individual:

The constitution of man limits the freedom of the individual.

V

PREVENTION

HOW CAN I PROTECT MY OWN AND MY CHILDREN'S HEALTH?

Our body on the day of our birth is given to many millions of parasites as their place of living. As this earth is our world so our body is theirs. Some move about in us as peacefully as we walk the streets; others are busy in helping to dispose of our food, or to destroy unwelcome members of their own race. Many scientists are certain that friendly parasites degenerate in our body and cause sickness when we by improper living fail to offer them the abode God intended for them; while others insist that all disease-producing parasites are intruders from the outside, altho they often bear the same appearance as our harmless permanent guests.

Best Education
is Best
Prevention

At any rate there are so many friendly and unfriendly, transient and permanent parasites, wanting to live in, with, and from us that the human race would have been extinct long ago if it had to rely for protection on physicians and druggists alone. This is not the case, as our body was constituted as a well-administered community, fully pre-

THE HEART AND BLOOD-VESSELS

pared to take care of itself. We are conscious of only a small part of ourselves. Many things are continually going on in our body of which we have not the least consciousness. Orders are given and taken by different nerves; digestion, excretion, and the current of blood are regulated; when we eat a surplus of food, more is allowed for consumption; when there is a scarcity, the system is adjusted to a more economical basis; if there is want, the body's administration draws first on our fat to supply the other organs with fuel, fat being the substance most easily spared; broken bones and wounds are mended by the growth of new tissue, and all this goes on without our control or conscious realization. The thinking, the conscious part of man's personality is only a bubble on the surface of his being, altho differentiating him from the animals. At least, so we believe at present. In case of sickness, the body fights automatically for protection. The white-blood corpuscles, the health commissioners of the body, give at once battle to the unfriendly parasites and the blood forms a substance which tries to destroy the parasites and their injurious products. Often it is impossible for a physician to recognize the disease from the symptoms, and decide what the treatment should be. Then he may withdraw a little blood from the patient, find what disease the blood has been ready to fight, and from the result he can immediately say safely if the patient suffers from typhoid, softening of the brain, or has been bitten

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by a snake, etc., and follow nature's lead in the treatment of the malady. Obviously, for its self-protection and warfare, the body must be its normal self, a condition possible only when it is allowed to lead its natural life. What constitutes a natural or normal life, in the present state of civilization, few people know.

When reason was given to man, he lost part of that instinct which led him to lead a natural life. Desire for food, rest, exercise, and sex-satisfaction for animals is regulated by instinct, which at once makes them want just as much as is good for them. Man possesses the instinctive desire for food, exercise, etc., but that part of the instinct which would just rightly supply the needs has been taken away from him and in place of it he was given reason, and he has become free to decide for himself from an immense range of possibilities. Man can get, prepare, and eat his food in the most varied ways; he may remain single, he may live with one or a dozen women; he may exercise all day or have animals or machinery do his work; he may sleep six or twelve hours, just as he fancies. In man the subconscious physical part of the body is placed, to a great extent, in the care of the conscious, reasoning part, which has to decide how best to provide for the former. Altho nature allows us a great field from which to choose with impunity, we make mistakes and the results at present are not what they should be, as few enjoy perfect health. On the other hand, we

HEALTH AND BLOOD-VESSELS

It is not until the true needs for health and well-being are known, all this from observation and experience, that the longest and most effective rules can be unconsciously followed rules of health, compare with those that have been obtained from scientific research. These rules must be taught to the child and not left to be found out after they have already been spoiled by mistakes that are too often made. "The three r's" on subjects pertaining to human health and happiness are: rest, regularity and rhythm; and that "the best education is the best prevention of sickness."

The health of the citizen is a public asset, just as is the ability to read and write. All children should have in school the benefit of a physician to aid in them in regard to their welfare. Parents should refuse to send children to any school that does not have careful medical inspection. A child can become infected from another child who is sick or come to school getting from a sick brother or sister at home. The medical school inspector should strictly avoid interfering with parents' views in regard to treatment, he should enforce rules of hygiene for the prevention of disease and find out the reasons why a child has become unable to learn and behave properly. Children who learn in school how their working ability is influenced by health, acquire a good habit for life that of consulting a physician when their work falls below their best standard.

THEIR CARE AND CURE

Whenever an extraordinary effort must be put forth in later life, they will try to have the body ready for it; and when in doubt, consult a physician, the same as they would have a boiler tested before firing up for unusually high pressure.

The old saying remains true, especially for chronic ailments, that the best way to remain well is never to be sick, or, in other words, a person who keeps himself in good condition is in little danger of becoming the victim of chronic diseases which, altho appearing suddenly, have been prepared by many years of indiscretion. Exaggerated virtues have the same deleterious effects as vices. The importance of an ailment should not be measured by the inconvenience it causes at the time, but by what may come of it four to five years afterward.

True, there exist diseases, caused by bacteria, which the body has difficulty in conquering and which often destroy life. The best way to deal with them is to get out of their way. Efficient health departments have succeeded in lowering the mortality by keeping in quarantine everything and everybody at a safe distance from places where such dangerous parasites live, and by destroying them wherever possible. Since we know that mosquitoes and flies carry parasites, we surely will find means of stamping out most cases of typhoid and sleeping sickness as already has been done with yellow fever

Health
Departments
and Research
Institutions

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and malaria in many localities formerly made uninhabitable on account of them.

Medical science has finally begun to prepare substances similar to those the body supplies for itself to overcome sickness. Physicians have already succeeded in finding nature's cure for diphtheria, and scientists are working hard to find healing sera for other diseases. It needs time and full concentration of mind to learn nature's ways. Research institutions can achieve reliable results only when research workers are sufficiently well paid not to be obliged to divide their attention and make money by practising.

Sanitary and
Welfare
Legislation

Man is yet in the infancy of his evolution. He has so far mastered animals and some of the forces of nature—steam, electricity, etc.,—and has succeeded in expressing a somewhat narrow set of thoughts and emotions which, for hundreds of thousands of years, from the old Egyptians down to Ella Wheeler Wilcox or Theodore Roosevelt, relate practically to the same subjects, but which nevertheless, differentiate men from other living beings. In most other respects the emancipation of man from the animal has hardly begun. Reason has not yet gained for him independence from the animal side of his nature. Most of us use our reason mainly to produce for our animal instincts a greater allowance of satisfaction. The struggle for food, home, and the other sex, absorbs most of the time of the

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greatest number of people, and in the whole animal kingdom, there exists nothing more shocking than the necessity we are under of training many millions of men (soldiers and police) in the art of killing fellow beings, as the only protection against destruction at the hands of our own kind. The distinctive human qualities of justice to others, of unselfish protection of the weak, are legislated, preached about, and conspicuously absent from individual dealings in which selfishness and sophistry knead the conscience into complacent indulgence.

In such a primitive period of evolution we must necessarily have laws for the protection of the weak. The bodily weak of past ages and of the animal kingdom is represented to-day by the ignorant, the woman, and the child.

Children must be safeguarded by law against the ignorance of their own parents and exploiters, who, otherwise would make an easy living out of children's lives. The body during growth needs for itself most of the strength it can produce. If the strength of adolescence is all spent in oppressive work, no reserves will be laid up for the future, and such people grow prematurely old and disabled. In the same way, a mother can not possibly perform at the same time duties in a factory and take care of a home and babies. The State must look out for their welfare by means of minimum wages and proper working hours, thus providing for the future generations and their bearers.

THE HEART AND BLOOD-VESSELS

City-grown
Hotbeds of
Disease and
Crime

Lack of mental resources and an understanding appreciation of nature's incomparable advantages in the country, combined with an over-appreciation of high wages and man-made entertainments as permanent sources of happiness, have made people migrate into large cities where they crowd so closely that, in the most densely settled districts, twenty times more people are sick than in places where proper breathing-space is allowed. Bad housing conditions are hotbeds of crime, immorality, tuberculosis, and infant mortality. They should receive the same consideration as Cuba and Panama. Good sanitation, proper sewerage, pure food and water, and public parks mean a saving for the community, by reducing the expense to each individual for sickness and the necessity of caring for the disabled as public charges.

Each Person
a Law Unto
Himself, But
Subject to the
Constitution
of Man

Considering differences of constitution, environment, and taste, one should not lay down the same narrow set of rules for each and every one. Altho the imagination may pervert in the adult the effect of any diet or treatment, congenital differences in constitutions really exist. This is proven beyond the shadow of doubt by observing babies, some of whom can stand a variety of food, and exposure to colds and infections without injury, while others, seemingly just as healthy, will suffer from skin, blood, intestinal, nervous, and bone diseases and be-

THEIR CARE AND CURE

come ready victims of contagious sicknesses whenever the least neglect is shown in their care, and especially their feeding. Some gain normally in weight by taking only two-thirds of the quantity of food which others need as a minimum in order to keep well and grow. In the same way some adults can allow themselves indulgences with impunity, while others less fortunately endowed, can enjoy a continuity of good health only by following a certain regime. For most people it is just as unsafe to imitate the exceptionally strong, who remain well in spite of an indulgent life, as it is foolish to abide by the suggestions of an easily unbalanced neurasthenic person, who recommends as a cure-all a vegetarian diet because he can not stand meat, or of another who advocates living in a kind of colony because his own nerves are too sensitive to endure contact with the world. By generalizing from a few personal experiences, one can not make rules good for all mankind.

For these reasons, I give here the limits of a wide field within which the average person should remain in order to insure an efficient life. I do not advise the kind of meals the average person should eat, but merely report what is the least amount of food the body should have and the greatest amount it can dispose of with safety. I do not set forth how every one should exercise; but state why and how much the body and mind must be considered, in order to keep both harmoniously developed and in a condi-

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tion to be depended upon at all times. This should give every one an opportunity to choose according to his personal necessities, resources and tastes.

For the welfare of the individual, and even more so for the race, the mind is of immense importance. The spiritual is closely interwoven with the material of our body and I begin here with the physical care, not because I consider it of more importance, but because I have found it to be easier for most people to change their manner of eating than their manner of thinking, easier to add a walk in the morning than to stop worrying. Besides, it is really less difficult to be well poised and level headed when the liver is in good order and the nerves undisturbed by bodily pain and discomfort.

VI

FOOD

WHAT KIND DOES OUR BODY NEED?

1. Proof that we spend each year hundreds of millions of dollars for food which the body neither wants nor needs, and many millions more to rid ourselves of it and its consequences.
2. Food must be appetizing and taken in congenial company to do the most good.
3. What food is expected to do for our body, and what is furnished to the body by:
 - (a) Starchy food (carbohydrates, like potatoes, rice, cereals, etc.).
 - (b) Fats (butter, bacon, cream, etc.).
 - (c) Proteids (meat, eggs, cheese, etc.).
Injury done and diseases produced by too much proteid foods.
 - (d) Mineral salts.
4. Exceptions to each rule.

HOW MUCH AND WHEN TO EAT:

1. The amount depends to some extent on the individual's vitality and manner of living.
2. The test whether our food is right is efficiency and length of life.
3. The proper food for babies and adolescents.
4. How to figure out the amount necessary to keep the body at its best.
5. Misleading appetite.
6. The benefit derived from food is modified by our habits, exercise, chewing, etc.
7. Meal-time and the time to be allowed for each meal.
8. About coffee, tea, alcohol, tobacco, etc.

TOO FAT? TOO THIN?

CONSTIPATION: CURED WITHOUT MEDICINE OR MEDICAL TREATMENT.

VI

FOOD

WHAT KIND DOES OUR BODY NEED

We should not consider a doctor a deep thinker who tells us to trust to our likes as a guide for our meals. A nation, whose leading men have succeeded in liking old, decaying meat, whisky, and tobacco, can hardly be held above a suspicion that their appetites have led them astray.

Tastes can be acquired and are matters of habit and geography. In a country where fruit, cereals and vegetables are abundant, where the sun shines every day, the needs and habits must be different from those in a country where the weather is cold, vegetables are rare, the variety of cereals is small and meat is cheap in proportion. Railroads and steamships nowadays bring food-products and cooks from all over the world to the centers of population. Thus it happens that people in New York, Chicago, or San Francisco have a choice in eating like those of Berlin, Rome, or Hongkong. All is dependent entirely on their financial circumstances and is independent of the actual needs of the body.

Millions Spent
Daily on Food
Which Make
Us Sick

It is strange that so few realize that something must be fundamentally wrong with the average

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man's daily food, when we all know that whenever any one goes to a physician nine times out of ten the doctor's prescription is a change of diet and a laxative to remove from the intestines what we have put into them. Or the doctor may prescribe medicines such as iodine, aspirine, salicylates, etc., which by increasing the tissue-change, remove from the system what already has been assimilated; or medicine such as iron, phosphates, and other tonics which bring into the body what we neglected to give it in our meals.

Carlsbad and other laxative waters and patent medicines are in great demand, as also are mineral waters, such as Saratoga and Vichy, which latter give back to our blood its normal alkali reaction, that we change to a sour and unwholesome one by eating too much meat and other albuminous food. Every year we spend in the United States over six hundred and seventy-two millions of dollars for food that is not required by the body and at least forty-five millions to get rid of it again. This does not consider the outlay to doctors, and undertakers, nor the loss of time. It should be understood at once that the body can make use of only a certain amount of food. Any surplus has to go through the process of digestion, assimilation, and excretion, all of which uses up a tremendous amount of energy and produces nothing more than a large bowel movement and richer urine.

Another proof of the common mistakes in diet is the

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difficulty many people have in retaining a decent figure. They would dismiss any caretaker who should permit horses and cows to grow a belly such as they carry around themselves. To be fair, we should excuse a few persons, as there exists a kind of sickness in which, on account of lack of secretion in certain glands, a body forms fat out of the stingiest diet.

It is a pity that every one has not an opportunity of seeing for himself the superior moral standard and resisting power against infectious diseases of all who are rationally fed and reared. As an example, we cite the Zeller House in Berlin, an institution for the children of drunkards, where, among the progeny of the worst kind of parents, for eight years there has not been a death, an epidemic, or a serious misdemeanor.

Only the quantity of the component parts of our meals must be rearranged to agree with the demands of the body. It is not necessary to give up the delicacies of the table.

A research worker in Russia cut small holes through the skin and into the stomach of dogs in order to watch what was going on there during digestion. He saw that the stomach would make itself ready for digestion when the animal saw some favorite food; this food would be digested promptly when eaten. More nutritious food, but which the animal did not

Digestion
Aided by
Good Taste of
Food and
Company

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like, was much more slowly digested. Digestion would stop entirely, no matter how nice the food was, if a cat or anything else the dog hated, came into its presence.

These experiments made the doctors think. They watched patients in whom, by accident or by reason of a surgical operation, a direct view could be had of the stomach, and found that food prepared after the prescription of a stomach specialist, but disliked by the patient, was slowly digested, while other food, absolutely against the doctor's scientific theory, but enjoyed by the patient and permissible by common sense, was promptly taken care of. In the same patients they saw, with their own eyes, how the digestion slowed down when an uncongenial person was present, or when the patient was told some unpleasant news. The quantity of the secreted gastric juice and the action of the stomach was directly measured during these observations.

Every one should draw his own conclusions from these facts in regard to the importance of a good cook and congenial company.

What the Body
Requires from
Food

All that we require in food is that it shall produce for our body, with the least wear of its organs, heat, strength and energy, in order that we may do our best work; that it shall leave enough material for the repair of worn-out tissue; that it shall provide in youth a sufficiency for growth and at all times enough reserve for the body to get along with-

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out eating for a couple of weeks, in case of an emergency, in sickness or accident. That food should add to the pleasures of life, has been dealt with previously.

Only part of the food we take at our meals is nutritive; part of it may be considered as wrappers, and are by-products which the bowels remove. The kind and purpose of the nutritive substances of our food are: first, carbohydrates (all starchy foods, bread, cereals, and potatoes contain them in large amounts); second, fats (such as cream, butter, bacon, fat in meats, oil, etc.); third, proteids (found in the largest proportion in meat, eggs, and cheese); fourth, mineral salts (such as phosphate, iron, chlorid, soda, etc., etc.), which altho containing no direct nourishment, are absolutely necessary to life. Each of these four substances is demanded by the body. A rational diet supplies the proper kind and amount of these foodstuffs.

It has been accepted by all leading scientists that the body gains its heat and strength in the most abundant and easiest way from starchy foods (carbohydrates). Fat is an excellent heat producer, but can not be digested in our climate in sufficient quantity to produce all the working energy we need. Altogether two or three pounds of cereals, vegetables, fruit, bread and one to two and a half ounces of fat, constitute an amount of food well tolerated by any person who leads an ordinarily hygienic

What Starchy
Food and Fat
Does for the
Body

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life. This quantity will over-feed and fatten only those who eat much meat besides or who do not exercise. Some babies and adults have an intolerance for carbohydrates, which condition is a disease and has to be treated as such; they become a cause of sickness only if they are unclean, decayed, or poisonous. During an epidemic, boiling is the only safe means of destroying the bacteria that gather on vegetables which thus propagate the disease.

What Proteids,
Especially
Meat, Do for
the Body

Carbohydrates represent for the body the coal which produces heat and power. The proteids (albumen) which we eat in a concentrated form in meat, eggs, and cheese and in small quantities in all cereals, are the material from which the greatest part of the body is built and are just as unfit to give strength as iron, from which a boiler is built, is unfit as its firing material. But for many years the conclusion was that because our muscles are flesh (proteids) the eating of meat (which is composed mainly of proteids) must produce strength.

The new-born baby weighs on an average from seven to eight pounds. At the end of the sixteenth year the average weight of a person is 110 pounds. The normal increase each year is on an average about seven pounds, or each day ten grams, which means that two-thirds of a tablespoonful of albumen is daily needed for growth. The quantity of proteids needed for repair of worn tissue is easily com-

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puted when we know the amount a person eats and have deducted the amount of component parts excreted as not needed.

Exact observation proves, beyond any shadow of a doubt, that the body can not make use of more than four to six tablespoonsful of pure proteid matter per day. It is certain that many chronic diseases arise from the eating of too much meat or proteid matter.

The waste of proteids is removed from the body by the kidneys. The kidneys are built to take care of only six or seven tablespoonfuls of proteids daily and can not stand larger quantities without wearing out prematurely and falling to pieces at the age of fifty, when parts of the kidney filter will be found in the urine, in the form of casts; then material good for the body is filtered out and much that does harm retained. These are the symptoms of kidney-diseases so common to-day in our middle-aged well-to-do population. When the kidneys once become diseased, it is only a short time before the heart will become sick, also.

The quantity of albumen needed by the system is quickly absorbed from the intestines. The remainder is more slowly absorbed, and having time to putrefy, makes an ill-smelling sewer of the digestive tract. Then from the bowels putrid matter is taken into the blood, which becomes unhealthy, and a fine soil for vicious bacteria. Bile is the intestinal disinfectant, but the liver is prepared to deliver quantities sufficient only for six or seven tablespoonfuls of proteids.

Why Does
Much Meat
Make Men
Sick?

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Biliousness is caused by eating more proteids than the body really needs—except in cases where the body has an aversion to certain articles of food, which is called an idiosyncrasy and may also cause biliousness.

We are so constituted as to stand a certain amount of waste in the blood. But if the amount becomes too large the waste settles, especially in the form of uric acid, which is likely to produce a chronic form of inflammation in any organ, or to act like a rough slack between the joints and to cause friction, where normally everything would move smoothly. This condition is called uric acid diathesis, or gout, which is a common cause to-day of discomfort, pain, and periodical or permanent unfitness for work.

Sicknesses that are helped by a reduction of albuminous (meat and egg) foods are, first of all, diseases of the kidneys, heart, and arteries, gout, rheumatism, headache, dizziness, and chronic inflammation. In some people the by-products of digested albumen destroy the red blood corpuscles. Nervousness, especially when accompanied by insomnia and the very uncomfortable emotional and sexual over-irritability, is decidedly helped by a so-called low proteid diet. A reduction of albuminous food to the normal amount, or less, enables medicines to act quickly, when, with a plentiful meat diet, they had had no effect. Every teaspoonful of albumen more than is necessary absorbs during its digestion and excretion energy which is not only squandered,

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but taken away from one's general working ability.

One may recommend a surplus of meat to a person who wants to be stimulated; but for the average man in daily life, needing continuity in thought and action, moderate quantities are preferable. It is impossible to make a weak person strong by giving him an excess of albumen (meat), as, after a few days, the body simply throws off the surplus, or circulates it as a harmful dead weight. The only exceptions lie with underfed people; after a long disease one may take as much as ten tablespoonfuls a day until one is restored to the normal.

Vegetarians prove that man can get all the proteids he needs from the vegetable kingdom. With very few exceptions most of our geniuses were moderate meat-eaters. Not all should be forced to derive building material for their bodies from the same sources. There is a continual cycle between the animal and the vegetable kingdom. Grass and grain are eaten by cattle. Men eat the flesh of cattle and their excretions from lungs and bowels fertilize the air and the ground for grass and grain. There exist peculiarities of taste and inheritance. Some feel best by taking proteids as meat, others by going back to its source, the vegetable kingdom, and many really need for vitality raw uncooked food, in which the energy of life, the power of growth, has not been destroyed by cooking. Frequently some foods, tolerated for many years by a person, have to be omitted from further use, as the body has been saturated to

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its limit by certain of the component parts and is poisoned by consuming them.

The last, and a very important ingredient of meals, is mineral matter—phosphorus, iron, chlorine, sodium, calcium, etc., without which the body would flap together as a flabby and boneless mass. We lose every day more than two table-spoonfuls of mineral matter which must be replenished by what we absorb from our food, especially from vegetables. A right amount of mineral salt is vital to the life of each cell. Every living tissue, except bone, becomes water-soaked and lies in distilled water. In water to which has been added one teaspoonful of salt to the pint, animal tissue gets along almost as well as in the circulating blood, and grows like the seedling of a plant, at least for some time. A little too much or too little of the different salts stops the growth at once.

The Vital
Importance of
Mineral
Matter

The general poverty that prevailed in past centuries still exercises its influence over the masses so that they believe that much helps much. Everybody remembers how, a few years ago, large quantities of salt were taken as a preserver of life. This was wrong. Some salt is necessary, but too much makes the blood too ready to coagulate, overstimulates the heart and, to a marked degree, the nervous system; it disturbs the exchange of material between cells and blood, and finally imposes on the kidneys unnecessary work in excreting it. If more salt than

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normal remains in the body, it attracts water in the same way as when it stands on the table, and makes people with weak kidneys dropsical, who, by leaving salt out of their meals, may be cured as if by magic. A quantity necessary to take from meat and vegetables the flat taste is sufficient to supply to the body all the salt needed. In a household having a competent cook, salt should never be needed on the dining table.

We can form the best idea of the decided influence salt has on the body when we remember that physicians inject a salt solution under the skin in order to stimulate the heart when it is in danger of collapse; that they inject a five per cent. solution into a vein in order to make the blood more quickly coagulate and thus better able to close a bleeding blood-vessel. Epileptics have far fewer seizures when their food contains little salt.

A certain amount of phosphates is needed for the body, especially for the nerves and bones, but too much does harm. Our food must contain some iron, but if we take too much the digestion suffers. We are everywhere impressed with the importance of right proportions. For babies a little too much of the very best food prevents a normal growth and makes them just as constipated as when they are starved. Too much fat is likely to give them skin diseases; too much albumen and salt, nervousness; an insufficient quantity of lime and phosphates, rickets and spasms.

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Experience with children proves further that what may be good for thousands may be bad in one very exceptional case. The great mortality among children has decreased since pasteurized milk has been generally used, but there exist perfectly sound children who become seriously, even fatally, ill with a breaking up of bones and bursting of blood-vessels when fed upon it exclusively (Barlow's Disease). Such seemingly hopeless sick babies recover inside of one or two months when given uncooked or mother's milk. Grown up people also may be made sick and miserable by limiting them to milk and eggs, tho such a diet will make others strong and healthy.

HOW MUCH, WHAT, AND WHEN TO EAT

It must be remembered that food is a most important, but not the only important factor in the production of health and life-energy. Constitution, vitality, exercise, the method of breathing and chewing the food increase or lower the benefits we derive from meals and must be considered when forming an opinion of the effect of diet. The body can produce approximately the same amount of heat from foodstuffs as that gained by scientists when experimenting with them in a test-tube; but this does not prove that the body always does so, as it does not act with the same precision as an engine. Vitality of the living cell is the deciding factor, a variable quantity, and is not to be figured out once for all and always with a test-tube.

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Some normal babies, for exactly the same amount of body-weight and growth, need only two-thirds of the amount of food that others equally normal need. During change of life the body stores up fat, under exactly the same conditions of life and with the same amount of food, which previously kept the figure slender. The trained guide and the seasoned athlete get along with much less to eat than a beginner. In certain sicknesses without any rise of temperature, young girls starve with meals which would keep a prize-fighter in condition. According to laboratory tests and the experience of others, thousands of people should have starved on a diet which, on the contrary, kept them hale and hearty for seventy years and longer.

It does not prove that a regime is best when we can, or when we like to, live on it for months and years. The only proof that the diet is right is the length of life and the general efficiency.

Scientists have taken as a standard for the kind and amount of food needed the quantities a healthy man would choose and the body dispose of at rest, or at light or at heavy work, but without considering previous and later life-histories. This, as any one can see, may be entirely misleading.

The rules we recommend in regard to the quantity and composition of meals have been followed, with slight modifications, by the men and women who have lived the most efficient and longest

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lives. It was a triumph of science when Professor Chittenden found those rules to agree with the results of exact scientific research. Living examples and scientific findings combined are sufficient to substantiate the claim, that the regime here recommended furnishes to the body the greatest efficiency and comfort with the least wear and tear on the organs.

Babyhood and
Childhood

At the beginning it must be forced upon every mother that the care of the baby decides the health and character of the man, as far as it is possible to do during its own lifetime. Until the tenth month, every day that the baby receives mother's milk increases his resisting power against sickness not only for the time being, but for life. Four breast feedings during the day and one at eleven P.M. and another at six A.M. give far less trouble than continual anxiety about nursemaids and cows. While the bottle-fed baby is always apt to suffer from indigestion and nervousness, the breast-fed child is practically safe from sickness.

Of fifteen babies who die, one is breast-fed; the other fourteen are bottle-fed. Of one hundred sick-calls that the average infant-specialist makes, ninety-eight are to bottle-fed and only two to breast-fed babies. This proportion would be even more in favor of mother's milk, if abominable housing conditions did not murder the babies of the poor by thousands in large cities.

All normal mothers are able, as has been absolutely

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proven, to feed babies from the breast for a short time at least. Only mothers who are abnormal also in other directions make an exception to this rule. The outside appearance of the breast does not signify anything. Elsewhere mention is made of a woman who, by simple desire to nurse a baby, made her breast secrete milk. On the other hand, there is no doubt that fear of not being properly fitted to act as a mother, and overanxiety interferes with the secretions.

When a mother has not sufficient milk entirely, to nourish her child, adding of two or three bottles of correctly mixed and prepared cow's milk, is preferable to exclusive feeding of animal milk, which, tho it contains food, has not the specific substance and life energy which will conquer the sickness to which man is subject. Every animal has in its body, ready for action, substances which fight the diseases that are peculiar to its kind. Cow's milk contains substances to combat the diseases of a calf, not those of a baby, which are of a different sort.

At no time should an infant receive more than a tenth of its weight in a day as nourishment, and at no time more than one quart of milk a day and, from the seventh month, a little farina, rice, spinach, scraped carrots, apples, etc., should be added.

To believe that every time a baby cries it is hungry would be as logical as to surmise that adults are only uncomfortable when they have not had enough to eat; unfortunately, there are many other things in the world to make us miserable.

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General good health, cheerfulness, and a steady, tho slow, increase in weight, are signs that the baby is properly fed. Rapid gain in weight, causing a likeness to a fat little Cupid, shows a type of infantile beauty upholstered with plenty of water but little sound muscle.

Up to the tenth year it is altogether safest and best to feed the child on vegetables, cereals, fruit, two to four glasses of milk, whole-grain bread and a small piece of chicken, or other light meat as a delicacy occasionally. With this kind of diet the nerves will be steadied and the body well prepared to grow and conquer the infectious diseases to which every child is necessarily exposed.

How to Figure
the Amount of
Food One's
Body Needs

A calory is accepted as the measuring standard for the heat-giving capacity of food. Just as we compute that a person needs so many yards of cloth for a suit of clothes, or an engine 25 horsepower to drive an automobile of a certain size and speed, so we say that a human body weighing 150 pounds needs between 2,400 and 3,000 calories in 24 hours, or 16 to 20 calories for each pound of its weight in order to produce its normal amount of heat and strength. One gram of albumen, or of carbohydrates, gives four, one gram of fat, nine calories. To illustrate the size of a gram we might say that one teaspoonful will hold, of sugar, for instance, four grams.

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From the habits of people who have lived the most satisfactory and longest lives as well as from figures of Professor Chittenden, one infers that the average person should not eat more than sufficient to furnish 17 calories for each pound of his weight; people over 45 years of age are better off with 15 or less; for excessive work, 20 may be permitted as a high limit. This should leave an appetite and comfortable room in the stomach for the low calory vegetables, fruit, etc., etc.; first, because they provide the mineral salts so necessary for the body's economy; second, because we bring into our body with raw vegetables, etc., the power of life and growth which, necessarily is destroyed by cooking; third, because vegetables prevent excessive putrefication and fermentation (bad breath, sour stomach, gases, etc.), that are so common and bad for the health and one's comfort.

It is obvious that the body requires in hot weather a certain amount of food to keep its organs going and itself fit to work. A locomotive needs, on the hottest day, steam to pull a train sixty miles an hour, but, as it is easier to make steam in hot weather, when much heat is not continually lost to the outside, the firing of less coal is necessary in the summer than in winter; for the same reason we should decrease the amount of food eaten in summer, but it is a mistake to cut the supply down too much.

No person, irrespective of his size and occupation,

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needs more than 20 calories for each pound of his weight. People whose brains and nerves act like an old clumsy steam-engine may fill up with 4,500 or more and still produce less than better developed ones with 1,800 calories; which explains why we are told that men doing hard labor need more than 5,000 calories a day; while, in truth, this is only a sign of their inferior constitutions. We will almost always find that the more intelligent and refined man can do the same amount of work by eating half as much.

Nobody should be afraid of what he eats, or weigh his food daily, which is a habit peculiar to self-centered hypochondriacs. We advise checking once, say on a Sunday, the quantity one eats. This check will give an estimate as to whether one eats too much or too little and will often offer an explanation as to why one is not well.

In the following table will be found an illustration of how Professor Chittenden checked off his meals and figured out how many calories he took in one day. Every one can do likewise for himself from the second table, which gives the different food-stuffs and their caloric values. When we eat two ounces, equal to approximately four tablespoonfuls, of rice for breakfast, we look in the list how many calories they contain and write it down, and do the same for anything and everything we eat that day. After supper we may sum up the calories; the amount divided by the num-

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ber of pounds in our body-weight will give the number of calories we took for each pound. Professor Chittenden's dietary for one day, as given in his book, "The Nutrition of Man," is as follows:

TABLE I
BREAKFAST

	PROTEID GRAMS	CALORIES
One shredded wheat biscuit	3.15	106
(30 grams = 1 oz.)		
One teacup of cream	3.12	206
(120 grams = 4 ozs.)		
One German water roll	5.07	165
(57 grams = 2 ozs.)		
Two 1-inch cubes of butter	0.38	284
(38 grams = 1 oz.)		
Three-fourths cup of coffee	0.26	...
(100 grams = 3 1-3 ozs)		
One-fourth teacup of cream	0.78	51
(30 grams = 1 oz.)		
One lump of sugar . . . . .	....	38
(10 grams = 1-3 oz.)		
	12.76	850

(One ounce is approximately 2 tablespoonfuls.)

LUNCH

	PROTEID GRAMS	CALORIES
One teacup of home-made chicken soup	5.25	60
(144 grams = 5 ozs.)		
One Parker-House roll	3.38	110
(38 grams = 1 1-3 ozs.)		

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LUNCH—Continued

	PROTEID GRAMS	CALORIES
Two 1-inch cubes of butter	0.38	284
(38 grams = 1 1-3 oz.)		
One slice of lean bacon	2.14	65
(10 grams = 1-3 oz.)		
One small baked potato	1.53	55
(60 grams = 2 ozs.)		
One rice croquette	3.42	150
(90 grams = 3 ozs.)		
Two ounces of maple syrup . . . . .	....	166
(60 grams = 2 ozs.)		
One cup of tea with one slice of lemon . . . . .	....	...
One lump of sugar . . . . .	....	38
(10 grams = 1-3 oz.)		
	16.10	928

DINNER

	PROTEID GRAMS	CALORIES
One teacup of cream of corn soup	3.25	72
(130 grams = 4 1-3 ozs.)		
One Parker-House roll	3.38	110
(38 grams = 1 oz.)		
One 1-inch cube of butter	0.19	142
(19 grams = 2-3 oz.)		
One small lamb chop, broiled, lean meat	8.15	92
(30 grams = 1 oz.)		
One teacup of mashed potatoes	3.34	175
(167 grams = 5 ozs.)		
Apple-celery-lettuce salad with mayonnaise dressing	0.62	75
(50 grams = 1 2-3 ozs.)		
One Boston cracker, split, 2 inches in diam.	1.32	47
(1 1-2 grams = 1-3 oz.)		

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DINNER—Continued

	PROTEID GRAMS	CALORIES
One-half inch cube of American cheese (12 grams = 1.3 oz.)	3.25	50
One-half cup of bread pudding	5.25	150
(85 grams = 3 ozs.)		
One demi-tasse of coffee . . . . .	....	...
One lump of sugar . . . . .	....	38
(10 grams = 1.3 oz.)		
	29.20	951

The grand totals for the day, with this dietary, amount to 58.07 grams of proteid and 2,729 calories. It is, of course, understood that these figures are to be considered as only approximately correct, but the illustration will suffice, perhaps, to give a clearer understanding of the actual quantities of food involved in a daily ration approaching the requirements for a man of 70 kilogram body-weight.

TABLE II

The Quantities of Ordinary Foods which yield 100 Calories with the
Distribution of the Heat Value between Protein,
Fat, and Carbohydrates.
(Prepared by Irving Fisher.)

MATERIALS	Weight of Food Yielding 100 Calories		Percentage of Total Calory Value of Protein, Fat, or Carbohydrate			Quantity
	Grms.	Oz.	P.	F.	C.	
Cooked Meats:						
Chicken	90	3.2	79	21	...	Ordinary serving
Beef, boiled, lean	62	2.2	90	10	...	Large serving
Beef, roast, fat.	32	1.2	25	75	...	Small serving
Sirloin	40	1.4	31	69	...	Small serving
Mutton, boiled.	34	1.2	35	65	...	Small serving

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TABLE II—Continued

MATERIALS	Weight of Food Yielding 100 Calories		Percentage of Total Calory Value of Protein, Fat, of Carbohydrate			Quantity
	Grms.	Oz.	P.	F.	C.	
Ham, boiled . . .	32	1.1	28	72	...	Ordinary serving
Ham, boiled, fat	27	1.0	19	81	...	Small serving
Bacon	15	0.5	6	94	...	Ordinary serving
Uncooked:						
Mackerel	57	2.0	50	50	...	Ordinary serving
Oysters	100	3.6	10	1	89	1 dozen
Dairy Products:						
Milk	140	4.9	19	32	29	Small glass
Milk, skimmed	255	9.4	37	7	56	1½ glass
Milk, condensed and sweetened	30	1.1	10	23	67	1½ glass
Whey	360	13.0	15	10	75	2 glasses
Butter	12.5	0.4	15	99.5	...	...
Cheese	22	0.8	25	73	2	1½ cu. in.
Eggs	59	2.1	32	68	...	1 large egg
Cream	49	1.7	5	87	...	...
Cereals, Vegetables, Nuts and Fruit:						
Bread, white . . .	38	1.3	13	6	81	Thick slice
Bread, brown . . .	43	1.5	9	7	87	Thick slice
Wheat flour	27	1	15	5	80	...
Rice	28	1	9	1	90	...
Rice, boiled	87	3.1	10	1	89	Ordinary serving
Cream rice pudding	75	2.6	8	13	79	Small serving
Tapioca, cooked	108	3.8	1	1	98	Ordinary serving
Potatoes, boiled	102	3.6	11	1	88	Large serving
Potatoes, baked	86	3	11	1	88	1 good sized
Cabbage	310	11	20	8	72	...
Lettuce	505	18	25	14	61	...
Peas	178	6.3	25	3	72	2 servings
Beans, tinned, baked						
Beans, tinned, baked	75	2.7	21	18	61	...
Chestnuts	40	1.4	10	20	70	...
Brazil nuts	14	0.5	10	86	4	3 nuts
Almonds	15	0.5	13	77	10	8 almonds
Dates (edible portion)						
Dates (edible portion)	28	1	2	7	91	3 large dates
Figs, dried	31	1.1	5	...	95	1 large fig
Prunes, dried	32	1.1	3	...	97	3 large prunes
Raisins	31	1.1	3	9	88	...
Grapes	140	4.8	5	15	80	...
Bananas	100	3.5	5	5	90	1 large banana
Apples	206	7.3	3	7	90	2 large apples
Apples, baked	94	3.3	2	5	93	...
Apple pie	38	1.3	5	32	63	1-3 ordinary serving
Oranges	270	9.4	6	3	91	1 very large
Water melon	760	27	6	6	88	...
Tomatoes	430	15	15	16	69	4 ordinary size
Marmalade	28	1	0	.525	97	3 teaspoonsful
Sugar	24	0.9	100	1½ lumps

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APPROXIMATE NUTRITIVE VALUE PER OUNCE OF FOOD STUFFS

	PROTEIN	FAT	C. H.	CAL.
Beef, roasted, as served	7	2	...	46
Mutton, game, chicken, etc.	6	1	...	33
Boiled fish	4.5	1	...	27
Raw meats, scraped	4	Trace	...	16
Milk puddings, blanc mange, custard, etc.	1.2	1.2	4	31.6
Boiled suet puddings	1.7	3.6	14.2	96
Boiled potatoes	0.6	...	6	264
Eggs	6	4	...	60
Bread and cake	2.3	...	14	65.2
Butter, dripping, oleomargarine, etc. ...	...	22	...	198
Milk	1	1.2	1.5	20.8

The third table which follows is also copied from Chittenden's "Nutrition of Man." It helps one to form a proper estimate of the proteids in food, which we know do harm to the kidneys, heart, and whole body, if eaten habitually in excess, or more than two to three ounces daily. This table makes it strikingly evident that altho meat and eggs furnish the material for repair of wear and tear, they give in proportion few calories to keep up the work of our body. For instance, half a pound of lean beef, with two ounces of albumen, gives all that is needed for repair-material, but only 308 calories, when 2,000 more, at least, must be supplied to the body for working-power. These 2,000 calories we must obtain, as much as possible, from foods which do not con-

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tain proteids, but, as almost all cereals and vegetables do contain some, it is wiser to be satisfied at a dinner with a quarter of a pound of steak, to be certain that we do not overwork our digestive and excretory organs by eating a surplus of proteids in the rest of the meal.

TABLE III

Sixty grains of proteid are contained in

	FUEL VALUE CALORIES
One-half pound of fresh, lean beef, loin	308
Nine hen's eggs	720
Four-fifths pound of sweetbread	660
Three-fourths pound of fresh liver	432
Seven-eighths pound of lean smoked bacon	1,820
Three-fourths pound of halibut steak	423
One-half pound of salt codfish, boneless	245
Two and one-fifth pounds of oysters, solid	506
One-half pound of American pale cheese	1,027
Four pounds of whole milk (two quarts)	1,300
Five-sixths pound of uncooked oatmeal	1,550
One and one-fourth pounds of shredded wheat	2,125
One pound of uncooked macaroni	1,665
One and one-third pounds of white wheat bread	1,520
One and one-fourth pounds of crackers	2,381
One and two-thirds pounds of flaked rice	2,807
Three-fifths pound of dried beans	963
One and seven-eighths pounds of baked beans	1,125
One-half pound of dried peas	827
One and eleven-twelfths pounds of potato chips	5,128
Two-thirds pound of almonds	2,020
Two-fifths pound of pine nuts, pignolias	1,138

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	FUEL VALUE CALORIES
One and two-fifths pounds of peanuts	3,584
Ten pounds of bananas, edible portion	4,600
Ten pounds of grapes	4,500
Eleven pounds of lettuce	990
Fifteen pounds of prunes	5,550
Thirty-three pounds of apples	9,570

The following list gives food-stuffs graded according to the amount of useful mineral salts (iron, etc., etc.), they contain:

Spinach,
Asparagus,
Yoke of egg,
Beef,
Lettuce,
Apples,
Red cherries,
Almonds,
Strawberries,
Carrots,
White beans,
Black cherries,
Green peas,
Potatoes,
Grapes.

As pointed out by Professor Chittenden, the figures are only approximately correct, because of the different qualities. Practically, it does not do any harm if 100 to 200 calories more or less are taken daily. The body possesses enough elasticity to stand such little differences with impunity; but, when loaded down daily by a thousand or more calories in excess of the working-power of its organs, it soon acts as

THEIR CARE AND CURE

the naturally wholesome and most necessary food taste good and lessens the acquired appetite for an unnecessarily large amount of meat.

The habit of eating at certain times makes the stomach secrete its juices at certain hours when we feel that gnawing sensation called appetite. The only part of the anatomy that most people consistently and regularly train is the stomach; it acquires a habit of working morning, noon, and evenings; and it is most pleased with a piece of meat, which absorbs the secretions best. This kind of hunger is misleading, and does not prove that the body really needs meat.

The secretions which digest food come in contact with each particle only when food is thoroughly masticated. Saliva digests carbohydrates. Four-fifths of all our food can be made ready in the mouth for absorption and consumption in the intestines. This makes us, to a certain extent, independent of the stomach, which is not subject to our will, while we can make the salivary glands work and digest for us whenever we want simply by chewing our food. In all stomach troubles, except in bleeding, Fletcherized food of any kind is permitted and no other diet prescription necessary. Fletcherized food never irritates mechanically; it is four-fifths digested in the mouth and can not sour in the stomach, as the saliva makes it sufficiently alkaline. In proportion to its weight, it is of

Masticate!

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tho its machinery were clogged and breaks down thirty to forty years too early.

The tabulated figures show clearly that if we had to live on meat alone we should have to eat two and a half pounds of it daily to furnish the body with calories enough for the production of normal heat and strength, and that, on the other hand, we should have to eat approximately two pounds of potatoes to furnish the necessary proteids for repair of wear and tear. A diet composed of meat, beans, or peas, cheese or eggs on one side, and cereals and other vegetables on the other, is the only one by which we can give to the body everything it needs in the right proportion, without causing to the system an exhausting amount of absolutely unnecessary work.

The most scientifically selected meals will be of little value, however, with an otherwise unwholesome life; absorbed food goes to places where a demand has been created by consumption through work. Proper food can make a man efficient only when he uses his brain and muscles. Those who use neither and live like cattle, will remain in that class in spite of an admirable diet.

Misleading
Appetite

As hunger makes everything taste good, people who are not accustomed to the diet here suggested had better begin meals with vegetables, fruit, and a carbohydrate and have meat served last. This makes

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that we take of the entire quantity of our daily food: thirty-five per cent. for breakfast, when there is a surplus of strength left from the night's rest; fifty per cent. for the evening meal, which should be taken after half an hour's rest from daily work, with nothing of importance left to attend to afterward; fifteen per cent. for a light lunch, which does not demand or absorb much energy and does not interfere with work before or immediately after it is taken.

Liquids of any kind are better drunk between than with meals. When a meal consists of vegetables and meat, a glass of water, or two glasses, will not be too much to drink. Water, however, adds too much weight when soup and coffee are a part of the menu. Broth does not contain any body-building or strength-giving materials. A cupful may be taken as a stimulant, as it starts a sluggish stomach into action. Thick soups are nourishing in proportion to their ingredients.

Liquid With
Meals. Coffee,
Tea, etc.

Every kind of spice that can be kept without discomfort on the tongue may be relied on as harmless to the stomach. When it irritates the mouth, it does the same to the stomach, the only difference being that we do not feel it in the stomach. Food containing too many highly seasoned spices also irritates the kidneys.

Coffee and tea are stimulants which work like a

THE HEART AND BLOOD-VESSELS

whip applied to a horse, in not giving strength, but pushing us on to greater effort. They may be allowed to people of sluggish temperament, for whom they lift up, temporarily, the nervous energy to normal. Those suffering from stomach, heart, kidney, and nervous troubles should avoid coffee and tea, as, by stimulating the organs to quicker action, they produce hyperacidity of the stomach, palpitation of the heart, an increased flow of urine, and an exaggeration of already present nervous symptoms. They may all be employed, with discretion, in sickness for the benefit of the patient.

Alcohol

Some prohibitionists have tried to prove by experiments that small quantities of alcohol do, in proportion, the same harm as large quantities. They have practically failed, however, as the moral, bodily, and mental standards of healthy people have not been lowered when they habitually took a quart of beer, two ounces of whisky, or a bottle of wine, daily, all through life. The average longer life of teetotalers may be accounted for by their having taken better care of themselves in every direction. Up to this time, prohibitionists have been unable to cite as examples, in favor of absolute abstinence, any Aristotle, Alexander, Caesar, Michelangelo, Shakespeare, Goethe, Byron, or Wagner. Napoleon said he respected a man who could not take one drink as little as he did a man who took too many; neither could become a general in his army.

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The bad effects of small doses of alcohol show in people who are not altogether sound; their inability to stand liquor is almost always associated with lack of stability in other directions. Prisons and asylums are filled with people who use liquor; this is not because they use it, but because they can not stand it; and they can not stand it because they are lacking in moral and mental stability. The fact that they are so strongly affected by alcohol is a symptom of inferiority, but not an indication that alcohol caused their inferiority, except when born of parents who were drunkards; for such people liquor becomes an aggravating cause, as it takes away what little stability they possess. Patients should be advised against the habitual use of liquor for the following reasons:

1. All alcoholic liquors rush the blood to those parts of the brain which are under greatest pressure and are likely to be overfilled with blood in the present day's intellectual struggle for existence. Altho a moderate use of liquor alone would not do any injury, its combination with hard mental work increases pressure on the most heavily taxed brain-centers.

2. There is hardly any one to-day who is not complaining of nervousness—especially that kind of nervousness which consists in inability to control one's feelings and actions, at all times, with reason and good judgment. The seat of self-control and sound criticism of one's own actions is the same part of the

Why Patients
Should Avoid
Liquor!

THE HEART AND BLOOD-VESSELS

brain which is the scene of the first attack by alcohol; that part of the brain which inhibits to give in to one's animal passions is the one that is paralyzed soonest. A nervous person using liquor is likely to do things which he would not do with his brain uninfluenced by alcohol. Only a perfectly sound person, who has self-control to spare, may drink liquor without risk of ever doing something he may regret later. Those who have no surplus of self-control will do better never to touch it. Many men have acquired sexual diseases and many women have fallen after a couple of glasses of whisky or wine had weakened their self-control.

The predilection of alcohol for certain parts of the brain may seem peculiar to the layman; nevertheless, many substances show a predilection for certain parts of our anatomy, just as certain colors are absorbed by some tissue cells and not by others, a fact we use daily in staining microscopical slides and bacteria.

Every busy physician knows people who never touched liquor until they began taking a drink to please a friend, husband, or wife and who finished as incurable, totally demoralized, drunkards. To urge another to drink is as foolish as to rock a boat or to throw burning matches around. It is impossible to estimate the consequences.

The small number of Mohammedans suffering from softening of the brain, which is a (para) syphilitic disease, is worth mentioning. Altho there is a great

THEIR CARE AND CURE

preponderance of Mohammedans in the Turkish Empire, yet there occur many more cases of paresis among Christians and Jews than among Mohammedans. Alcohol favors the development of the worst consequences of syphilis.

It is almost superfluous to mention the deleterious effect of large doses of alcohol on liver, stomach, nerves, kidney, brain, etc. The habitual drunkard can hardly ever reform into a moderate drinker, and a periodical drunkard never can. The most of them have an over-susceptibility to alcohol. The first drink will be enough to kill, along with their sorrows, all their good intentions. Their attempt at godliness is drowned in the first glass and only the devil remains.

In sickness, e. g., diabetes, pneumonia, or heart disease—liquor may save life, if given at the right time in proper quantities. Patients with weak hearts often cultivate the habit of taking several highballs during the day as stimulants. Without being really stronger, they feel better afterward, and they invite premature breakdown by overtaxing their strength. On account of a defective heart no one needs to give up a glass of wine or beer, if he has been accustomed to it all through life.

It has been proven, without doubt, that tobacco may cause hardening of the blood-vessels, angina, and other consequences of an impaired blood-supply in the tissues. Moderate quantities do no harm; but

Tobacco

THE HEART AND BLOOD-VESSELS

immoderate use is bad for the young and suicide after the age of forty-five. Three or four cigars, and six or eight cigarets, a day, made from unadulterated tobacco, may be taken without harm by the average healthy man all through life. In every chronic disease only observation can decide whether tobacco should be forbidden entirely, previous habits being an important factor.

Diet When the Heart is Sick!

People with compensated heart trouble may follow the diet here laid down in every particular, paying especial attention to eat not more meat than is advised. When the heart shows symptoms of weakness, the whole daily quantity eaten should be divided into five meals in place of three. This will demand less effort at one time for digestion; the food will take less room and be less likely to interfere, by upward pressure, with the free space allowed for action to the heart. At any time when the compensation is badly broken, the patient would do better to remain in bed and live two or three days exclusively on one quart of milk a day, taken a cupful at a time, with a teaspoon. A physician should watch the patient's strength during this diet. This exclusive milk diet for two or three days keeps the blood free from irritating waste, eases the work for the kidneys, and saves the strength of the heart and the whole body, by reducing the demands on its energy made by digestion and assimilation of more substantial food. Thorough mastication, eating slowly

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and only when well rested, and all the other points mentioned as important, must be followed conscientiously by a patient with a weak heart.

TOO FAT? TOO THIN?

Rational diet and exercise, as discust in a later chapter, give to everybody, regardless of whether fat or lean, the right weight. For instance, the proper diet for a person weighing 220 pounds, when he should weigh 170 pounds, should contain only enough calories to nourish 170 pounds. If that does not suffice to satisfy the appetite, fruit and vegetables of low caloric value may be eaten. Fat people become nervous when the stomach is empty. There is plenty of good-tasting food to fill the stomach which does not increase the body-weight. Fat people who wish to reduce their weight may do so by living up to the following in a general way:

Before breakfast take the Muller, or some similar kind of exercise (see Chapter VIII). The breakfast to consist of fruit of any kind, except bananas; when the fruit is stewed it should either be not sweetened or sweetened with saccharine; eggs, fish, or meat; not more than two thin slices of bread; one cup of tea sweetened with saccharine. An average-sized cube of butter is also permitted.

For dinner, take meat of any kind which is not fat or prepared with rich gravies; plenty of lettuce, tomatoes, celery, spinach, asparagus, string beans, egg-plant, or cabbage; same fruits as mentioned

THE HEART AND BLOOD-VESSELS

above for breakfast; sherbets not very sweet or prepared with saccharine; not more than one slice of bread and one cube of butter; no soup, potatoes, root-vegetables, or sweet deserts.

Supper should be along the same general lines as dinner and breakfast. All liquids should be taken at least one hour before, or one hour after meals. If hungry between meals, fruit may be taken.

It must be remembered that, without any exercise, the body can burn up very little fuel and it is difficult when taking no exercise to diminish food to the amount necessary to prevent the weight from increasing without weakening the body. A walk of at least an hour or gymnastics should be taken to give the body an opportunity of disposing of its normal amount of fuel.

By eating all the food needed at breakfast and mid-day, and only some fruit and slices of bread in the evening, one is sure soon to reduce the weight considerably. Sleep and rest, following a heavy evening meal, is conducive to taking on weight. This is important to know, as many people, in their effort to lose weight, eat only two meals a day and do not succeed because they take the heaviest meal at night.

A healthy person can lose from four to six pounds by taking for one week nothing except a quart of milk per day, in four equal portions, with a teaspoon. If very hungry four apples may be added per day. People who are not well should follow this regime only under a doctor's advice.

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By eating nothing for a week except old dry bread, and drinking nothing except three glasses of warm and light wine every third day, and taking packs at night (see special chapter), healthy people feel fine and reduce from one to two pounds a day. The packs at night give an astonishingly restful sleep and take away thirst.

Methods for reducing weight should be kept up only until ten pounds in weight have been lost. The normal amount of food, according to schedule, should then be eaten. The right way to get rid of fat is to change it into muscle by exercise. It is dangerous to the heart and nerves to underfeed the average person for a period longer than two weeks. Some stand it and feel fine, but others will need years to rebuild their strength. It is physiologically impossible to give a person who is built like a dray-horse the figure of a race-horse.

Persons who are too lean must add 20 calories for each pound of underweight and cover those calories by cereals, sweets, and fat—not by meats which can not be taken with benefit for any length of time in excess of what the actual present weight demands. A gain in fat alone is undesirable. The increased weight should consist of fat and muscle. For that reason, the prescription for lean people begins, the same as for fat people, with exercise in the morning.

For breakfast, as big a bowl of cereal, with cream and sugar, as can be eaten; bread with plenty of

THE HEART AND BLOOD-VESSELS

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to stir everything up without reason; even the best working department will then become disturbed and temporarily demoralized. The general manager represents the brain—the bowels one of the departments.

When it is not possible to remove nervousness or its cause, the bowels must be stimulated directly to greater activity by food which stirs up the peristalsis, this is the name given to the motion peculiar to the bowels. Such foodstuffs are bran, different kinds of nuts, fruit of any kind (blackberries excepted), apples with the peeling left on, prunes (the small ones are preferable as they have more skin—that being the most beneficial part), orange-juice with some pulp, grapes, etc., and most vegetables. This diet makes the work for the bowels easier, as it leaves plenty of bulk on which they can take hold. Meats and white bread are almost entirely absorbed, and what remains is so small in bulk that the bowels must contract to their smallest possible size in order to reach them for forward pressure. This the bowels are sometimes unable to do, in which case the person suffers from the so-called alimentary (food) constipation. This form is aggravated when there exists, in addition, congenital weakness of the muscles of the bowels.

Next to the importance of diet in treatment of constipation is exercise; especially beneficial are exercises of the trunk—bending, stretching, twisting, and movement of the whole leg when lying down. Such gymnastics may be taken inside of five minutes; they

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knead the intestines like a thorough massage and strengthen the muscles which attend to the peristalsis. In some cases a lukewarm bath of about ten minutes' duration, taken daily for about six weeks, works like magic. Such baths help to relax the bowels when they are spasmodically contracted, a nervous condition we can see with X-Rays on stretches of the bowels two to six inches long, where the feces can hardly pass except with the help of a strong laxative.

Every regularly repeated action finally becomes a habit of the body. For this reason the bowels should be called upon to act by going to the closet every day at the same time, when, after a few weeks, at the habitual hour the feces will be ready for evacuation with the help of a little straining. People with a weak heart or hardened blood-vessels should never strain hard; the effort may exhaust the heart or an artery in the brain may break; the color of the face indicates how straining interferes with the circulation.

Gas acidity and a sensation of fulness are often associated with inactive bowels and are caused by eating fatigued, by nervousness, insufficient mastication, hasty eating or by too much liquid taken with meals. When no liquids are taken during meals, but, instead, an hour or two before or after, and when the other causes are remedied, most unpleasant sensations after eating disappear.

Every one whose constipation does not arise from a

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real organic disease of the intestines can be cured by following the routine given below:

The regime begins with exercise every morning. People who do not work in the morning may take a luke-warm bath for ten to twenty minutes on rising; others preferably bathe in the evening. Hot and cold baths have an entirely different effect and may be taken, but they do not produce the results on the bowels we look for here. A glass of cold water should be taken slowly immediately on awakening.

For breakfast one or two apples should be eaten with the skin left on. People with poor teeth can have the apples scraped and mixed with corn- or other flakes and sweetened with honey. Scraped nuts may also be added. This gives an effective and delightful breakfast dish. For a change, other kinds of fruit, if necessary crushed, may be substituted. In any event, the first dish for breakfast should be fruit. The most preferable cereals are those which contain bran (the whole grain ground up), oatmeal, etc. Of dry cereals a very good one is Uncle Sam's breakfast food (whole wheat and flax seed, ground). Whole wheat bread and bran gems are the best kind of bread. Bran gems are made as follows: For 6 gems use 2 cups of bran, 1 cup of white flour, 3 teaspoonfuls of molasses, 1 teaspoonful of baking-powder, $\frac{1}{2}$ teaspoonful of soda, $1\frac{1}{4}$ cups of sweet milk, and a little salt. Mix the ingredients, putting the soda in the milk, and bake in a moderate heat three-quarters of an hour. Honey, marmalade, and butter should

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be eaten. Anything else that is desired may be eaten for breakfast, except such things as are mentioned later as forbidden.

For dinner: If wanted, a small helping of soup, a big dish of vegetables, fruit and, after this is eaten, as much meat as there is an appetite for; as desert, apples, grapes, etc., etc.

Supper should be the same as the dinner and breakfast, in a general way. The main point is the right kind of bread and fruit.

Everything must be avoided which has been found, from general or personal experience, to be constipating: white bread, especially when toasted, cocoa, chocolate, red wine or anything prepared with it, crackers, etc. Some people are constipated by boiled milk, others by rice, etc.

An apple, eaten with the skin, at ten in the morning and four in the afternoon, or, without fail, one hour before retiring, each time with a glass of water, almost always helps. Every one who Fletcherizes can eat any kind of fruit. People who have not will-power enough to Fletcherize, may have the fruit scraped or crushed and make at least a little effort to salivate it thoroughly, so that it will not sour on the stomach. Stewed prunes (about ten), a glass of prune-juice, or four to five figs taken evenings, are rather satisfactory. During the day a third of a glass of water taken frequently has a better effect than large quantities taken at one time. Honey, buttermilk, grape-juice (only certain makes), nuts, raisins, and many

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other foodstuffs of the same kind are good regulators. At least one of these should be regularly on the menu. It may be stated once more that everything should be avoided which is directly binding. If the bowels do not move after following for ten days this diet, meat should be given up for twelve days. Vegetarians seldom complain about inactive digestion. Twelve days are enough to start the bowels working properly.

Many people take laxatives all their lives without apparent harm and continue to have the same good results without increasing the dose. With others, the laxative has to be increased, or changed, or none will work satisfactorily. It is easily understood that a pill must be powerful in order to clean twenty-five feet of intestines inside a short time when, normally, the large intestines move the fæces up and down at intervals of from one to three minutes and have them ready for evacuation only after an interval of twenty-four hours. The motion of the bowels can be seen with the Roentgen Rays, which clearly show the effect of different laxatives and their predilection for different parts of the intestines. Unwholesome and violent kinds of purgatives are often taken without injury for years by those who eat too much, and have in their intestines a surplus of food which does more good when removed by an unnatural evacuation than when normally assimilated, while those who eat only the right quantity of food become weakened by the continued use of laxatives.

VII

AIR, CLIMATE, HOME

1. The relationship of air and light to the body.
2. The influence of climate on man's efficiency.
 - (a) The altitude.
 - (b) Humidity and electricity.
 - (c) Temperature; equable and changeable weather.
 - (d) Wind.
 - (e) Dust.
3. Work: indoors and out of doors.
4. The home: its location, general arrangement, and congeniality.

VII

AIR, CLIMATE, HOME

No matter whether man was born in Paradise or was gradually developed from a lower animal type, one thing certain is that he was originally an open-air creature and his body, even to-day, can not stand with impunity indoor air, unless it is kept, in composition, like outdoor air. Air is just as essential to the body as heart and brain; the only difference is that the air has to be renewed with each breath. When the oxygen of air is taken from us, we die just as quickly as tho our heart or brain had been cut out. The body is affected as injuriously by polluted air as by a diseased organ.

Air is made up of 74 per cent. nitrogen, 25 per cent. oxygen and a small variable per cent. of carbonic acid gas. The existence of all animal life is dependent on oxygen, which must enter the lungs, become absorbed, and then circulate with the blood. Man has succeeded in depriving his fellow beings of many valuable possessions, but God made it practically impossible for him to deprive them of oxygen; lack of it is very seldom the reason why air becomes unsuitable for consumption.

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In our lungs we absorb oxygen and throw off carbonic acid gas. The air of a room may become so saturated with the latter, that such carbonic acid gas as we should exhale finds an outlet with such difficulty that it either partially remains in our system or is reinhaled with each breath.

Men have been asked to do mental or manual labor in closed rooms, the nerves then tested for sensitivity, which it was found decreased in proportion to the length of time that the windows were closed. In the early winter, people begin to live indoors with closed windows, which is the real cause of so many complaints at that time of depression and exhausted nerves. Nobody breathes deeply in a closed room because, instinctively, we rebel against reinhaling air which we ourselves or others so recently had in the lungs.

Effect of Good
and Bad Air.
Light.

Gases which originate from other sources are mixed with the air and absorbed by the blood, in some instances become just as dangerous to the system as tho we had swallowed poison; for example, gases generated by insufficient combustion, lighting gas, the fumes of chloroform, etc. Bacteria may be carried through the air from one near place to another, or from one patient to another.

Free access of fresh air into stagnating air, is the best remedy against poisonous gases and bacteria, which otherwise would attack us in overwhelming numbers. Direct and sufficient communication with the open air must exist wherever man lives. A draft

THEIR CARE AND CURE

should be made to pass through a crowded room every hour in order to drive out excretions from lungs and skin. The slightly increased cost of fuel in winter, when the windows are kept open, is compensated for by better health. The welfare of many must not be sacrificed to the folly of one who does not believe he can stand having the windows open. Air-drafts and winds are God's ventilators. Many large cities would be less healthy if the much-complained-of winds should cease, leaving stagnating air to enshroud the population in a malodorous cloud.

Benjamin Franklin understood that people catch cold indoors. The experience of the army and navy proves that no one who wears suitable clothes and footwear ever catches cold out of doors. Thousands of intelligent people get their colds in heated rooms, which act like culture-mediums for bacteria. By remaining out of doors for a day or two, well covered, they might quickly cure themselves. After the defeat of Napoleon in Russia, his army was attacked more than ever before by typhoid fever. Soldiers who were treated in hospitals usually died, but the majority of those who remained out-of-doors got well. Pneumonia is treated with open windows. Tuberculosis thrives indoors and is likely to be cured out of doors.

Sunlight destroys many disease-breeding parasites. In dark places there are, on an average, ten times as many parasites as in a good light and the old saying is true that "good light and air close the door to the

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physician." Vitality and tissue change are lowered in the dark. Most plants can not normally develop without light. Light makes every function of the body more active and is a tremendous promoter of optimism. It is peculiar how we all notice the effect of weather on the looks, actions, and feelings of most people, without drawing any personal conclusions as to the place where we ourselves should live.

Influence of
Climate

A thoroughly sound person can, with reasonable discretion, be at his best as well under the equator, or at the North Pole, as in New York or California, provided he knows how to protect himself against extremes of cold and heat, diseases, want of food, etc. On the other hand, the experience of American and European governments in their colonies, shows that many officials are changed with the climate, for better or worse, morally, bodily, and mentally. It is not necessary to go to far distant countries, or to remember the difference between a Norwegian and an Italian, a German and a Spaniard, or a Russian Jew born in Europe and one born in America, to realize the influence of climate and environment. Absolutely reliable people are sure that a change from the plains to the mountains, from the seashore to inland places, or from Florida to California, has a decided influence on health and working ability. Humboldt, the great naturalist of the last century, defines climate as all the changes in the atmosphere which noticeably affect the body.

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It is a great pity that physicians do not recommend a permanent change in climate to patients who, without apparent organic disease, complain of lack of vitality and of bodily and mental ill health, as well as to sufferers from tuberculosis.

Some babies are born without the ability readily to adjust themselves to their environment. In spite of a healthy appearance, they become and remain sick if the least thing is wrong with their food, the temperature, light, or if there is lack of quiet in their sleeping-room. Such babies either outgrow their limitations or develop in later life a general over-sensitiveness and lack of stability; they grow asthmatic, are inclined to become fat, gouty, or irregular in digestion. A climate unsuited to them makes their bodies sluggish. They represent the type of people who do not amount to much on account of chronic fatigue and an inability to sustain an effort. An analysis of the effect of climate easily explains why a change may be helpful to them.

Hot weather, if continued for weeks, with dampness besides, lowers the vitality and resisting-power of the body against sickness and indiscretions. People whose bodies have not been accustomed since childhood to a hot climate had better remain out of it or should live there quietly, on a vegetarian diet, and avoid liquor. By this regime the Trappist monks succeeded in working and reach an old age in hottest

Tropical and
Arctic
Climate

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Africa. In cold weather the body must produce a greater amount of heat, which means a greater expenditure of bodily energy. These are some of the reasons why people who are not strong will find that a moderate climate is the easiest to live in.

Influence of
Altitude

An altitude of only 4,000 feet in summer, which affects the body to the same extent as an altitude of 2,500 feet in winter, increases the number of red corpuscles and distributes the blood differently. More blood circulates near the surface and less in the intestinal organs, whereas, in a lower altitude, sluggish people ordinarily have too much blood in the intestinal organs. Up to a height of 15,000 feet the white blood corpuscles, our fighters against sickness, increase in proportion to the altitude and every function of the body becomes more vitalized.

With every thousand feet of altitude, the weight of one thousand feet of atmospheric pressure is removed from the skin and the resistance against the blood's circulation is lowered in proportion. If one remembers how small an area is open to the atmosphere in an ordinary mercurial barometer, and sees the mercury fall almost four inches at an altitude of four thousand feet, he can imagine the difference which such a change in pressure must make on the surface of the body, which is more than a thousand times greater than the opening in the barometer. Many people quite rightly feel as tho a weight were taken off of them when they go to a higher altitude.

THEIR CARE AND CURE

Those who find work and pleasure a conscientious effort, who are fatigued without reason, sluggish, and inclined to be fat, are often changed, by a higher altitude alone, into progressive and ambitious people.

Air, when saturated with humidity, almost to the point of rain, does not permit the best contact of oxygen with lung tissue, or very ready evaporation from the skin, which is an important excretory organ. In damp weather the waste of the body must either be excreted through the kidneys, or it will cause general discomfort when it remains. Electricity, which is constantly produced by any and every thing we do, finds in damp air a less favorable opportunity for discharge. More than the proper amount remains in the system and gives to nervous people a feeling of discomfort, especially in the region of the heart. In a dry climate, for instance in Egypt, one-third of the work generally done by the kidneys is performed by free evaporation through the skin. This means an immense saving for the kidneys, as in place of one quart of urine, they have only to secrete a pint.

In an equable climate it is unnecessary for the blood-vessels to change in size as often as they must in localities where they have to adjust themselves to frequent changes in temperature. In elderly people in whom the blood-vessels are worn, an equable climate saves these work and often permits them to follow a useful occupation. The economy of the body must be regulated differently in winter and summer by different

Air Over-
charged With
Humidity or
Electricity

The Life-
prolonging
Equable
Climate

THE HEART AND BLOOD-VESSELS

kinds of clothing, food, etc., and this also amounts to quite a strain for old people.

W. 64

It has been proven by laboratory tests that the body uses more food and changes its tissue quicker when exposed to winds. The difference between wind and still air is the same as that between a bath in a bathtub and a bath in the ocean. In a still medium, a layer of air or water remains in close proximity to the skin and accepts its temperature. In moving air or water, a different temperature is continually brought anew into contact with the body. When the surrounding temperature is lower than that of the body, heat is taken from it, which must be made up by burning more fuel, or food. This explains why a windy locality disagrees with people of low vitality, who can not eat and digest well, and is agreeable often to those who need an outlet of energy.

W. 65
Foot

Breathing is easier in air free from dust. The little air pipes of the lungs are provided with tiny muscles which contract, in self-protection, against an air contaminated by an irritating dust—their action being similar to that of the eyelids. For pure air the lungs open themselves wide, in order to offer the greatest possible breathing space. This is one of the reasons why so many people feel better when on the ocean or when breathing dust-free mountain air. It is easily understood that a chronic form of inflammation, especially in the lungs, may be caused by irritating dust.

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It is not always possible to decide at once, in each case, what is the right climate for a person. Sometimes a high altitude agrees with one for whom, from a medical standpoint, it would appear that the seashore were the proper place, or vice-versa. Theoretically, excitable people should have less trouble in controlling themselves on or near the ocean, but the sight of the waves gives to some the feeling of rest, and others are disturbed by their noise and motion. In a similar way, mountains affect people by the impression they make on the mind, which interferes with the direct effect of the altitude. In either case, sunshine, rain, and wind are modifying factors. By using good judgment and making one or two changes, every one may ascertain what locality fits him best. This country offers unlimited possibilities for finding work in any kind of climate. Those who are oppressed and handicapped by their present environments and, without apparent reason, lack in stability, commit a gross neglect of their best interests by remaining, without compelling reasons, in a climate which may be the cause of their limitations. Concerning the influence of altitude upon the heart, the reader is referred to Chapter XIII.

Change of
Climate Worth
a Trial

Change, unfortunately, does not benefit people who feel lonely because friends and family have been left at home. When hard and successful work does not overcome the loneliness, all good derived from an otherwise favorable location may be destroyed by homesickness.

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To some patients must be recommended, besides a change of climate, a change of occupation and out-of-door work in the country, as the only means of making their lives worth living. Not only the economic condition, but the stunted growth of millions of city dwellers cry out, "back to the country," which is discust in detail in a chapter on the hygiene of work.

City and
Suburb

Centralization of business and decentralization of residence districts, are steps in the right direction in the evolution of city-building. Since the battle for existence crowds people for ten hours daily into an air polluted and made noisy by thousands of men, animals, and factories, the rest of life, at least, ought to be spent in a quiet neighborhood, in the country, or in a suburb. Noises are sounds, sounds are waves, waves make vibration and, even tho we do not pay attention to the noises of the street, the brain is made to vibrate, which can not be a matter of indifference. High-grade sensitive brains which are vibrating from noises and sounds in the street, do less good work in a noisy city than when they are allowed to be normal in a quiet atmosphere. The flight of so many men with original ideas into the country or suburbs has a good reason.

It is self-evident that a home should have all the modern hygienic improvements—windows with exposure to the south, west, or east, quiet sleeping-rooms where windows may be kept open, etc. The temper-

THEIR CARE AND CURE

ature in living-rooms should be about sixty-five, in sleeping-rooms, about fifty-seven; and the air in winter should be kept sufficiently moist in all rooms, artificial heat being apt to dry it out. By keeping the house too hot, one makes for oneself an artificially warm climate and is affected, on going out-of-doors, as tho one moved with one step from southern California to northern Michigan. Rooms should be carefully ventilated, both in summer and winter, as heat and impure air together produce bad spells of nervousness and intestinal disorders in children and in some adults. Summer diarrhea in children happens mainly in poorly ventilated rooms and is often the equivalent of heatstroke in adults.

With age comes maturity and the normal instinct is to be independent. No progress is possible if the younger generation were always to abide by the wishes of elders. That is the reason why it is wrong to make grownup people of strong personalities live together or share the home life of parents. Good-hearted people try to please those who are dear to them and, by giving up their own plans, lose what is possibly the best in their individuality; those who do not yield cause discord. Many a room in health-resorts and sanitariums would remain vacant, if grownup people did not make themselves victims of the homes of others; those who are most generous break down soonest.

Victims of an
Uncongenial
Home

VIII

THE INSEPARABLY INTERDEPENDENT TRINITY OF WORK, REST AND SLEEP

HYGIENE OF WORK:

1. Occupation essential to health.
2. The cause of fatigue when out of proportion to the work done.
3. Proper division of time between work and rest.
4. The influence of over-ambition, or unwillingness, on the quality of work.
5. The cause of mediocre work.
6. The advantage of farm- and ranch-work and how to overcome the objections thereto.

HYGIENE OF RECREATION:

The effect of dancing and music.

HYGIENE OF EXERCISE:

1. The distinction between exercise and over-exercise.
2. The advantage of interesting exercise and team-work.
3. Exercise for children and the teacher's responsibility.
4. Exercise for people over forty-five.
5. Walking (sadly neglected), riding, swimming, gardening, etc.
6. The advantage of the Muller and similar systems of exercise.
7. Exercises permitted when the heart is sick.

SLEEP:

1. Distinction between the sleep of the conscious and the sub-conscious self.
2. What is the proof of sufficient sleep?
3. The average length of sleep.

SLEEPLESSNESS:

1. Causes.
2. Cures.

VIII

THE INSEPARABLY INTERDEPENDENT TRINITY OF WORK, REST AND SLEEP

Work and sleep, rest and activity, are parts of one unit and are interdependent. Work makes sleep and activity makes satisfactory rest possible. They are not opposites like darkness and light, or heat and cold, which can exist each without the other.

Entire lack of sleep for eight days brings every organ of the body to a standstill. The quality of sleep in a healthy person corresponds, with almost mathematical precision, to his quality of work. Normal people who are compelled to keep bodily and mentally quiet, either sleep very little or their sleep is unsatisfactory.

The blood delivers the food supply with which each cell produces its own particular kind of work—the muscle that of contraction, the brain that of reasoning, remembering, discriminating, etc. But the capacity of each cell's work is limited, as, during its work, chemical substances, fatigue products, are formed which accumulate and interfere, after a certain length of time, with further activity, until eliminated. The injection of blood from a tired animal into

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another of the same kind which has rested all day, will make the second one just as tired as if it had worked. By making a tracing of the contraction of a muscle, we may see its working capacity decrease and the necessity for rest increase, in exact proportion to the quantity of the chemical fatigue-products which accumulate. The elimination of the fatigue-products takes place during rest, and for the brain, heart, and nerves, mainly during sleep.

Sleep, exercise, work, and rest must be taken in the right proportion to make any one of them satisfactory. Any physician who wants to improve the one must consider the others. It is against the laws of nature to treat sleep as a thing in itself, by paying attention only to the nights, just as hopeless is an endeavor to improve the quality of a man's work without close attention to the quality of his sleep and recreation.

HYGIENE OF WORK

Every normal body produces, except in sickness, more energy than it needs to keep heart, lungs, and bowels working. This surplus of energy must be spent in mental or manual occupation; if left to accumulate in the system, it destroys the tissue in the same way as an electric battery is destroyed when a current is turned on and not directed to some outside work. The first signal of unemployed energy is restlessness; later the tissues deteriorate—lack of exercise having an additional bad effect. With a man past forty leading an idle life, the probability is that he

THEIR CARE AND CURE

will live to be fifty-seven years old; for one leading a harmonious and sufficiently occupied life, the probability is that he will live to be sixty-six. This is the experience of life insurance companies who make a specialty of old age annuities.

On the other hand, those who use up more strength than their bodies normally can generate, use up their future and wear out the system by overwork, exactly, as their opposites do by lack of work. By training any man's working-capacity can be increased, but only to a certain point; this point differs with different people. The ambition to reach a point beyond the individual's inherited and highest obtainable ability is the cause of many failures.

The brain furnishes the working current for activity of every organ of the body. Each brain-center remains congested so long as that part of the body is working to which it supplies the working energy. For the average person forty-five minutes is the limit for highly concentrated work. After ten minutes' rest, the work may be repeated for the same length of time. A longer relaxation of two or three hours should then follow, when work may be resumed in the same manner. By training many people succeed in surpassing these time limits. For less concentrated work, eight hours' labor, with a rest in the middle, is not too much, provided the muscles, or the special organ that performs the work, does not become fatigued sooner.

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For fatigue out of proportion to the work done there exist, besides sickness, bad air, unsuitable climate, and insufficient food, three distinct causes. The first is lack of exercise, when, on account of insufficient use, the muscles grow weak and become exhausted by a slight effort. This condition is easily cured by a two weeks' course of systematic physical training. The second cause is a peculiarly constituted muscular and nervous system, which can not sustain an effort. This is easily demonstrated by the electric current that is able, in such cases, to cause only about a third as many contractions in succession as it can produce in a normal person. The third and most common cause of chronic fatigue, is an over-sensitive nervous system which becomes affected by fatigue-products, so small in quantity that they would not make the least impression on a strong nervous system. It can be demonstrated that this peculiar cause of chronic fatigue and exhaustion really exists by the experience of people who have been almost suddenly enabled to stand a full day's work, climb mountains, etc., after their nerves had been steadied, or made less sensitive, by some kind of medicine, or by Christian Science, etc. Previously they may have felt the necessity of lying down after the least effort. Any absorbing interest, enthusiasm, unselfish love, etc., have the same healing effect on chronic fatigue, through taking attention away from one's self. In this kind of chronic fatigue, medicines that stimulate are of no avail, while sedatives, which, theoretically, make a person

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tired, often work like magic, as they render the brain less sensible to fatigue-products and thereby restore the normal feeling of vigor.

A good division of time for the average person is six to eight hours' work; four hours of rest, meals included; three hours of pleasure of a kind which employs faculties that were not used during work, and eight to nine hours of sleep.

Proper
Division of
Work and Rest

The faculties that are active during business hours should be entirely relieved each week for thirty-six hours. This is achieved best by a diversion, the blood being drawn away from those parts to which it habitually flows while engaged in one's usual work. On the other hand, one must be cautious not to tire one's self by the diversion itself. Each year once, or twice, if possible, a vacation of at least twelve days should be taken. Ten days are necessary to remove from the brain-centers the rhythm that has been accepted automatically through an ever-repeated kind of activity. This so-called "perseverism" is over, in a healthy person, at the latest on the eleventh day, when the brain is ready to work with renewed energy.

A bodily healthy person is not conscious of his body. A mentally healthy person should not be con-

Cause of Poor
Work

THE HEART AND BLOOD-VESSELS

understanding would remain idle if the necessity of making a living or an ambition did not induce them to work. Unwilling or over-ambitious workers should become acquainted with the so-called "paradoxical reaction." This is a condition in which parts that are active and their centers in the brain do not receive their due working supply of blood. By direct observation it is proven that strong emotions, like fear, over-anxiety, or over-ambition, for their own centers, draw away blood from parts where it is really needed for work. This explains why people in such stages of mind are unable to do their best, for instance, in an examination, competition, battle, etc. Energy spent in one direction—as in fear, anger, etc.—is lost for anything else. This is a loss which means failure when only entire concentration could have led to success or the possible achievement of a great deed.

The reason so much mediocre work is done is that so many people are lacking in enthusiasm and love for their work. The Bible and all philosophers call work one of the kindest gifts of God, tho to-day it has become for many disagreeable drudgery. The most pleasant way in which to make a living is to do work which is congenial. A literary man, if compelled to sell goods, is unhappy. A born physician, or teacher, is happier when following his profession than another who follows the same profession only because compelled to do so in order to make a living.

Hardly anything is more apt to ruin health and

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dissipate youth than discontent with one's work. A great number of tolerably successful city dwellers, on account of their position as employees, are displeased because they work for wages and are dependent on an employer or corporation's good will. Liberal pay does not compensate them for the fact that they are producing for another to own, and that the owner may deprive them of what they have built up with their best efforts. Even less inspiring is the work of millions who represent nothing but parts of machinery made of human flesh—because mechanics has not yet succeeded in replacing them by steel. For years such people go through the same motions in a factory, never seeing the beginning or the finish of a shoe, engine, or whatever they may be laboring on. Their days are passed as those of some insane people who, for years, continue automatically to go through the same motions, knitting stockings twenty to thirty feet long without any interest in the finished product.

Concentrated production, which is characteristic of our time, led, as a natural consequence, to the concentration of people in centers of production in large cities. Millions of men, women, and children, unprepared for city life, migrated from the country into cities not ready to receive them. They do not see, behind the glamour of stores, offices, and professional names, the bodily and mental degradation which necessarily is connected with an uphill struggle in a crowd of insufficiently educated neighbors. They do not

Back to the
Country.
Why and How
to Overcome
the Objections

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heed the warning given in each large city by the great number of hospitals, quack doctors, juvenile misdemeanors, and conditions in tenement districts which are the city-grown hotbeds of crime, infant mortality, and tuberculosis. Millions do get along in the factories, offices, and stores of large towns, but for millions of others no remedy logically exists except removal to the country and away from the source of their trouble—the city. Not that the country is a cure-all; a great deal of trouble exists there, too, but the country offers relief from certain conditions which are detrimental to so many in the city.

Until fifty years ago, seventy-five per cent. of the population lived in the country; to-day only twenty-five per cent. live there and seventy-five per cent. are in the cities. Formerly farm and ranch were considered the best places in which to make a living. Nobles and knights had contempt for a livelihood gained in any other way. In Europe the land is all taken up. But in our God-blest country any one can still easily acquire land and be independently self-supporting, and thus escape sickness and the humiliation and friction connected with salaried work in the city.

The first reason so few take advantage of unsurpassed opportunities for independence, health, and happiness on farm and ranch in the United States, is that most people have not the least idea that these opportunities exist. As always, the monied class finds

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first what is agreeable and returns to the country, while the great masses foolishly stick to the stuffy factory and store until the best land is gone. In the country every one may soon become his own master, provided he is as diligent and punctual in working for himself as he is compelled to be when slaving for another in a factory or an office. First, he may rent and soon buy good land on which he can earn all that he needs for himself and his family, and, in a short time, he may save for the future. There is no doubt that any man with good health, and exercising ordinary business ability, can succeed and be independent with a capital of not over \$300 to start with.

The second reason why work in the country is disliked is because most of us have been trained to receive our pleasure and recreation from conversation and from man-made things. We practically leave undeveloped the understanding appreciation of anything coming directly and immediately from God and nature, which we would go miles to see when reproduced in an art gallery, but pass by as uninteresting when real. While in working hours in an office or factory there is too great sameness, we are offered during leisure hours in the city too great a variety of superficial amusements. By drawing habitually on outside sources for recreation, we gradually lose our own resources and become dependent on others for our pleasures. The average city dweller seldom has concentration enough to enjoy reading anything except light literature; the same if done in the

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country every evening becomes wearisome. Not that the life in the country is dull, but the people who find it so are lacking in intellectual resources.

To see, we must be shown. The school-teacher himself must first be made to understand what an unlimited wealth of pleasures, benefits, and riches can be had in the country: when he grasps things right he can not avoid instilling into the minds of youth right appreciation. It is the general experience that men who spend their youth on the farm with understanding parents are always happy when they return there in later life. Those who in youth were not trained to commune with nature fail when, in later life, they try to live in the country. They do not understand the language of field and tower.

Life in the country and its contact with field and mountain give a better sense of proportion as to man's position in this world, and a deeper religious feeling, than life in the city, where the importance of man is overrated, as one sees mainly man-made things. In the country, boys become imbued with patience: by watching the growth of plants and trees they acquire the knowledge that every sound growth takes time, while, if brought up in the city, they are likely to expect quick results and to give up before the fruit can possibly be ripe.

To counteract the lure of the city, every country school-house should be provided with talking-machines to carry the voices of the best singers and speakers from large towns to little villages and a biograph

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should be ready to reproduce sights. Once a week a performance should be given to reproduce, in this way, the best that New York and Chicago afford. At least once every two weeks the school-house should be made a social center, where all can meet and young people can find proper mates. For uncongenially-mated couples, country life is terrible. Being compelled to live together, unrelieved by visits and entertainments from the outside, husband and wife irritate each other beyond endurance and flight to the city is a welcome compromise.

In deciding about returns for one's work, the higher wages paid in the city must be discounted. The length of time during which people remain fit for work of a high standard in factories and stores is shorter than on the farm and ranch. The cost of living is higher in the city. Statistics about final results show that a man who invests his brain and muscle in a farm is, after twenty years of work, when he is around his fortieth year, better off in regard to health and a care-free future, than the man who worked for higher wages in the city.

Farm and ranch offer, in our country, sadly neglected opportunities of escaping wage-slavery and enjoying the most pleasant and wholesome kinds of work.

HYGIENE OF RECREATION

Body and mind have to be recreated after having created; after work, rest must follow. As we do not use all our faculties in our business, it is illogical that

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the mind and body should be kept entirely quiet after working hours. A harmonious personality can be developed only by change of application or occupation. There exists no valid excuse, except sickness, for spending all the energy the body can produce in one's bread-winning occupation, and becoming so tired daily in business that one is unable to enjoy a few hours with dance, music, games, etc.

Men of high type have always divided their time physiologically and given to each part of their nature its due, which is the reason why they are in better condition to do really good creative work and superior to those who drudge for sixteen hours daily, without allowing the brain-center an opportunity to recuperate for intense action. With few exceptions, people who have only time for bread-winning work, possess an inferior mind.

A change of occupation has the same effect on the body as a change of crops on the soil. Body and soil both become exhausted earlier if forced always to produce the same; they grow more fertile by a changed output. Children whose faculties are concentrated from early childhood on one kind of work invariably disappoint parents by a premature standstill of their one-sidedly cultivated abilities. People who over-conscientiously restrict themselves, without change, to the same occupation, reduce their brain to a kind of automatic action, which does not admit of modification, or the production of new ideas. Any one who is not a fossil can convince himself of the truth of this

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statement by doing the same kind of work for a period of three months, eight hours daily, and returning each evening to the same people. He will find that any pleasant change renders his work more attractive and himself more ambitious.

Besides what is here said, we refer the reader, in regard to recreation, to the chapters about "sexual life," "cure of nervousness" and that part of the final chapter which deals with "vacation in America and Europe."

In recreation, the physical, intellectual, and emotional side of man's nature have to be considered and, to avoid repetition, we deal here mainly with the emotional side of man, which has a physiological right to exist and on which, to a great extent, depends his feeling of happiness and the cheer he brings to others.

The emotional side of the majority of people can not be entirely satisfied by free libraries, lectures, gymnasiums, playgrounds, etc. We know from observation of children and people in a primitive state that the love of moving the body to the rhythm of music in some form of dancing is an inborn peculiarity of the average man. He seems also to possess an innate desire for some kind of music.

Dancing and
Music

The Greeks and Romans provided shows and entertainments from public funds, which kept citizens happy and out of mischief, even tho such entertainments were not always elevating according to our ways of thinking. Some form of dance was connected with

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religious services of old times, just as they are accompanied by music to-day. Almost all primitive peoples have public dances and games, which take in the life of man the same place that play does for the animal. During the middle ages, with its ascetic views, recreation was not always considered a necessity, but dancing and music were free in public places on the occasion of many religious and municipal festivals.

Dancing and music were always man's most natural recreations; they provide the most harmlessly pleasant outlet for energy and break that terrific loneliness, in which state of mind many are likely to commit mistakes and err, just as when intoxicated.

Without dancing and music, recreation leagues do not reach those who most need their help. Both are for the health of the soul of many young men and women what drinking water is to the body, and should be supplied by the city and supervised exactly as is the water supply. With liquor and indecent music, however, dances may do more harm than bacteria.

At present it is pathetic to see in American cities young men and women with good, clean-cut faces, who rush to the worst of dance-halls to satisfy a perfectly legitimate desire for enjoyment. Many would prefer to go where they could dance and have a good time with bright, decent people, but, as they do not find such places, they remain for nights in localities where they often acquire habits of vice.

Some forms of art and music appeal to man's higher emotions, while others stimulate his animal passions.

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The first impel to good and noble work, the others constitute the best bait for prostitutes and saloons. Taste for good art and music is, to a great extent, acquired by cultivation.

There can not be the least doubt that recreation bears a direct relationship to work. When cities offer to the public opportunity for free, wholesome recreation, they offer not luxuries, but bodily necessities, which elevate the standard of manhood and womanhood.

HYGIENE OF EXERCISE

While machinery can be kept as good as new when at a standstill, and is worn out by use, living organs, and especially muscles, deteriorate when inactive and improve by doing their proper work. The brain or muscle that is active grows strong; the inactive ones make few demands and receive lesser supplies of fresh blood. Consequently, they are not in as good working order.

Why Exercise
is Necessary

When man succeeded in having animals and machinery do the work which for thousands of years his ancestors had performed with their muscles, the muscles, necessarily, had less exercise and often were allowed to become weak from lack of use. This would not have done any harm if the only object of muscles had been to move limbs, to till the soil, or to fight an enemy. They were destined to do many other things. All the bones and most of the organs are kept by them in proper position. Untrained muscles

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are strong enough to keep everything right, so long as the body is at rest, but they stretch and stiffen when for any length of time the body is active or in an upright or bent posture.

Weak muscles of the back produce abnormal spinal curvatures; the back becomes bent, one shoulder often too high and the lower part of the spine bent too far forward, which pushes the intestines over their natural support in the pelvis and causes a dislocation of the stomach and intestines (gastroptosis, enteroptosis). Weak muscles cause knees to grow improperly and the arch of the foot to flatten. It is astonishing how many women have wrongly bent and set ankles and are in need of orthopedic foot-wear, which condition is less frequent in hilly countries when, necessarily, muscles are better developed by walking uphill.

There exists a relationship of strength between the muscles of the limbs, and trunk, all of which are subject to our will, and the muscles of the heart, lungs, and intestines, which move automatically, independent of our will. While we do not need to develop big muscles to keep the heart and intestines in good shape, we must not allow our arms and legs to become fat and weak from lack of exercise, as then in time the heart will become the same.

Oxygen, after being absorbed in the lungs, forms heat mainly by combination with substances which it finds in muscles where the largest quantity of blood circulates. In fatty tissue, oxidation, which is iden-

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tical not only with the formation of heat but of strength, is slow. This is the reason why brain-workers with sound bodies can rely on a greater, ever-ready supply of vital energy for mental work than those who neglect exercise, who do really good work only when they feel fit in occasional spells. Sixty per cent. of our body-weight is muscle for use as a power-plant, and nobody can ignore this generator of bodily strength with impunity.

The fatigue-substances of properly employed muscles are the best natural means of inducing sleep. To work one-sidedly with the nervous system—with the brain—until it is exhausted and imperatively demands rest, is dangerous. Extreme fatigue is likely to wear out the nerve-cells prematurely and permanently, until neither quiet nor treatment can restore them to their previous vigor.

Our climate and environment improve the immigrant and his children, yet alone would be powerless to counteract forever living conditions which are here becoming similar to those in Europe. The necessity of going ahead independently in the battle with unfriendly elements and hostile Indians, made the original North-American settler the stalwart pace-maker of the world. The present generation can keep the same bodily and mental vigor only by voluntarily cultivating sound, strong bodies which, in the early pioneers, were produced by environment, it being impossible in those days for weaklings to survive.

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Exercise increases, while over-exercise diminishes our strength. Exercise elevates the standard of all our work, over-exercise lowers it. Exercise adds to our reserve energy, over-exercise takes away from it. After exercise one should feel more ambitious and sleep and appetite should be good, while over-exercise unfits us for daily occupation and renders the appetite poor, and the sleep restless or too heavy. Exercise must never be taken when the body is tired from mental work; the health is improved and a person harmoniously developed when man's total energy is properly divided between mental and bodily work. No good can come from adding exercise after the body has gone to the limit of its bodily or mental endurance in attending to business. These facts should be remembered, as strong-minded people often force themselves to take exercise when they should take rest.

Exercise that is entertaining and enjoyable affords a quicker increase in strength, as more can be taken, than of perfectly hygienic but uninteresting exercise. A child can be on his feet and play almost all day without becoming tired, but becomes exhausted by a straight walk of ten blocks when he is not entertained or amused.

In every kind of exercise it is of paramount importance to perform it exactly as ordered. By bringing even the little finger under the control of the mind, making it move exactly as commanded, we teach the

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body to obey orders from the will, which, as we shall see later, is the basis of an efficient life.

It is always preferable to exercise out of doors. Indoors the air can not possibly be kept as free from pollution from excretions of the skin and lungs. If taken indoors, the windows should be kept wide open.

Exercise taken in teams or in some relationship to others gives a training for living in harmony with other people. In few occupations can a person acting alone be as efficient as he is if able to work with others for a common end when every one's power for good is multiplied. Ask unhappy, jealous people whom you find in sanitariums, or lonesome, forlorn souls whom you meet on the by-ways of life, and you will hardly ever find one who cultivated in youth the habit of playing harmoniously with others. There is less jealousy displayed among people brought up in a country where children exercise in teams, as in England or America, than where everybody takes gymnastics alone by himself, as was the custom formerly in Germany.

Advantage of
Teamwork

Generally people prefer to do the things they can do well; but they should practise those in which they are not so proficient. For example, the athlete should take up the sciences, the scientist, athletics. Science easily degenerates in an unhealthy body. Gymnastics and exercise should be taken for self-improvement, not for competition.

Correct breathing is at least as important as gym-

THE HEART AND BLOOD-VESSELS

Breathing
Exercise.
Duty of the
Teacher!

nastics. Breathing exercises should be taught and taken several times a day.

Thorough exhaling lessens the danger of contaminated air. The oxygen we inhale is needed for the production of heat, strength, and vitality; it is like the air-draft which makes the coal burn in the furnace. With little oxygen or little draft we can not expect the body to run with a high degree of energy or power. Insufficient exhalation prevents the oxygen from coming into thorough contact with those parts in the lungs where the residual air stagnates. Stagnating air allows bacteria to remain in poorly ventilated spots, settle down and cause pneumonia, tuberculosis, and many other infectious diseases.

Many nervous people and those with low vitality have a way of ceasing to breathe for eight or ten seconds, and then to breathe two or three times in rather quick succession, which peculiarity alone is likely further to depress them. Inspiration increases, expiration decreases the number of heart-beats. The heart stops entirely when for one or two minutes we stop breathing and the lungs are kept in a state of full inspiration.

While it is possible to give the child gymnastics before the sixth year, it is not necessary; the child gets enough exercise in play. Beginning with entrance to the kindergarten, natural conditions are changed to artificial ones, and the child must be taught at once how to stand, breathe, and walk correctly. Many a poor youngster's life and health could have been

THEIR CARE AND CURE

saved if the teacher had spent daily only ten minutes dealing with this matter. This ought to be imprest strongly on every teacher, as there exists no excuse for omission. No time is lost, as sound children pay better attention and learn more quickly than sick ones. Statistics show that those children who are best developed bodily, are altogether the most satisfactory pupils and later the best citizens.

Up to the forty-fifth year any form of exercise within a commonsense limit can be recommended; after that age, every exercise should be avoided which demands very quick action, like running, jumping, etc., as it may overtax the heart. No matter how carefully a person lives, the wear and tear of forty-five years has lowered the elasticity of the tissue. We see this, as mentioned before, in the eye, which, even in those who feel young, shows signs of decreased elasticity, necessitating glasses at the age of forty-five or fifty. It is the same with the heart, and many who try to do at forty and fifty what they did at twenty, because they feel like youngsters, are permanently injured, as the heart remains overstretched. It often loses its youthful elasticity without showing symptoms, until tested under a strain unnatural for that age.

Walking through the country does not cost much money and is a great health-restorer. For the lover of nature, it is a pleasure to walk alone; others do better to choose congenial company, until they have

Elderly
People

Walking
Out-of-door
Exercise

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learned to understand the language of field, trees, and mountains. Most art is poorly imitated nature and only a few great masters express beautiful thoughts. If people only knew how much superior are nature's works to those of man, they would feel sorry for time they often waste in art galleries and theaters.

Walking and work in nature-clubs under congenial leaders are decidedly more wholesome recreation than the average uninstructional moving-picture show. Walks in a city are less to be recommended, because noises make the brain vibrate, whether we realize it or not. Air in large cities, especially in business centers, is always contaminated by a mixture of dust, smoke, and humidity. The lungs protect themselves against such impurities by a slight contraction of their smallest vesicles; in the country air enters freely and without obstruction.

It is a pity that children are not told more about the great benefit and pleasure to be derived from tramping through fields and woods, over mountains and plains. This taste, when once cultivated, grows stronger with years and is a precious possession for every one, especially for the man of little means. It is much neglected in this country, but a source of delight to inhabitants of Europe, especially of Switzerland, Southern Germany, and Norway. Boy Scouts and Camp-fire Girls are pioneers of a most wholesome kind of recreation. A warning is given not to begin at once with walks of many miles, especially in the mountains, when during the whole year little exercise

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has been taken. Further, while it may be beneficial to walk slowly ten miles, taking one hundred steps a minute, it might be injurious to walk very fast for half that distance.

For horseback riding the old saying is true that "for the inside of a man nothing is better than the outside of a horse." No parents, who can afford it, should neglect having their children taught to ride, box, sail, and last, but not least, to swim. The mastering of such things later in life is connected with undesirable excitement and effort, which detracts from their good effect. Farming, hunting, and similar kinds of bodily occupation have been adopted by many great men as a balance and rest for hard-worked brains.

For all those who have no time or opportunity for outdoor exercise, may be advised the gymnastics recommended by the Danish army officer, Muller, in his book "My System." Being written for his countrymen, it fights some bad habits which the reading public of the United States have already overcome with better education and hygiene. His system keeps the skin, bowels, sex organs, and lungs normal; it considers the development of the muscles of the arms, legs, neck, and trunk sufficiently to keep the whole body in good form and it hardens against catching cold, as some of the exercises are taken naked. The ablution he recommends in the middle of the exercises can be omitted or made with salt water of a temperature which does not shock the nerves.

Systems of
Exercise

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People who never have taken any kind of gymnastics should begin by taking each exercise only three times, gradually increasing, in two or three weeks, to the number recommended by Muller; people over forty-five should never try to do more than three-quarters of the number he indicates. They must be taken so slowly that the number of pulse-beats does not increase more than fifteen in one minute. If any fatigue is felt during the habitual daily work, the number of exercises should be reduced at once. If properly done, the quality of everything accomplished during the day should be better than before.

The correct position of the body while taking the exercises and the keeping of this position during the day is of great importance. Taken in an incorrect position the exercises do harm; their benefit is lost if, during the day, by returning to an incorrect posture, vital organs are again prest from their normal place. Many cases of constipation, nervousness, headache, large hips and abdomen, general discomfort, and lack of vitality disappear by giving fifteen or thirty minutes daily to the Muller system. Other systems may be just as good, but some develop strong muscles on arms and legs and, by neglecting chest and abdominal organs, build up an inharmoniously developed body.

Exercise for
Invalids and
Those With
Sick and Weak
Hearts

Chronic invalids who have not the free use of all their limbs can improve their general health and abilities by taking such exercises as are possible to them.

With a well-compensated heart, in spite of struc-

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tural defects, any work and exercise can be undertaken which come within the limits of the person's strength. Any exercise must be avoided which greatly intensifies the heart-action, or is followed by exhaustion, pain, or excitement. Habit must be considered. A person accustomed from childhood to climb mountains can continue to do so without injury, while a plainsman, with the same condition of the heart, might harm himself badly by climbing even a small hill. The mountaineer may injure his heart by riding an easy horse when he has not learned to ride, but the cowboy may continue to ride a bucking bronco in spite of valvular heart-trouble. No sensible person will put unnecessary strain, by violent exercise or emotions, on a good working heart, which, however, on account of structural defects, is handicapped.

There is a system of walking especially devised for those with hearts, not seriously sick, but in need of being strengthened. It consists of taking walks, of gradually increased length, on roads that gradually grow steeper. In many health-resorts such roads are marked according to the incline and length and if these walks are taken judiciously they strengthen the heart without risk of overtaxation.

When compensation and circulation are disturbed in heart disease, all gymnastic exercises are strictly forbidden until the patient has improved by rest and medicine and is able to remain in bed comfortably in an ordinary recumbent position, able to talk for five minutes and to walk one hundred steps without be-

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coming short of breath. Then only such exercises are allowed as are easily within the limits of the patient's strength. The exercise must decrease the number of heart-beats when the pulse is over eighty-five, and increase them eight to ten beats when the pulse is under sixty.

SLEEP AND SLEEPLESSNESS

Sleep: Sleep bears the same relation to activity as the crest to the bottom of a wave—both are parts of one unit. During rest and sleep the cells of the body are purified of fatigue-products, caused by activity, and are made ready for new work. In searching for an explanation of the nightly aggravation of certain symptoms, especially pain, a rhythmical daily and nightly change of the chemical composition of the blood has been found to occur. For a long time it has been known that plant life is not the same during the day as during the night, altho we know that this is caused in part by the action of light.

As mentioned before, sleep is a function of the body, like the beating of the heart and the respiration. Twenty days without food do less harm than four days without sleep. The muscles subject to our will rest entirely during sleep, and all involuntary organs, like the heart, lungs, and intestines, work automatically without interference of the brain, which, during waking hours, continually influences their actions. The heart-beats of babies during sleep are eight to ten less

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per minute than when awake; the respirations decrease one-third, and the speed of the bowel-action is lowered in the same proportion.

Altho sleep is of vital importance to the brain, it is not necessary to lose consciousness entirely. People who complain of having suffered from insomnia for weeks, months, and years, believe that they do not sleep because the brain works. The brain has a conscious and a sub-conscious action. During waking hours the conscious part is that which does, or, at least should do, the work; it needs rest at night and receives it if conscious action is stopt. No serious harm is done if sub- or half-conscious action of the brain continues, provided people do not worry, and so make themselves miserable about so-called insomnia.

Proof as to whether or not a person has enough sleep is his condition in the daytime. A few hours of good sleep are sufficient for some people. It is altogether foolish to decide about the sufficiency of sleep by its length. People who are satisfied with what sleep they get feel all right; those who worry and fret over their inability to sleep not only remain poor sleepers but become hypochondriacs. A restful, tho sleepless, night may bring strength and recuperation, while a few hours of worry and anger in the morning hours, just before getting up, may nullify the good effects of many hours of sleep.

A baby during the first month of life normally sleeps when it is not taking nourishment. This is best for it, as, during the short while it is awake, its brain

Test of
Sufficient
Sleep

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receives an immense variety of impressions, since everything in this world is new to it. Up to the fifth year twelve hours of sleep are sufficient; up to the fourteenth ten, and later eight hours are enough. Eight hours of sleep are enough to recuperate from ordinary work; after a longer rest the nervous system does not change over promptly to an intensely active condition. After excessive effort ten to twelve or even more hours of sleep may not be too much to restore the equilibrium.

Those who sleep soundest in the early part of night do their best work in the forenoon; others who sleep better in the early morning hours are at their best late in the afternoon. There are more nervous than perfectly healthy people who have the latter type of sleep. Frequently this is caused by eating heavy meals late, also by the habit of retiring late, after the mind has been intensely occupied in the evening.

Sleep is a part of one's personality and manner of life, and depends upon what we do and feel during the day. Very stupid people can sleep at any time and those of tremendous will-power can force themselves to do so. In the one case there is nothing on the mind and in the other everything of interest can be voluntarily excluded. In either case the fatigue-products of the automatic organs—the heart, bowels, etc.—are sufficient to induce sleep. A well-known case is that of a man who was stupid, deaf in one ear, and blind in one eye, and could always fall asleep when he

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closed the good eye and lay on the good ear. Napoleon could sleep like a new-born babe just before an important battle, as, with his power of concentration, he could stop the action of his brain, just as one can turn off a faucet.

In insomnia the night's rest will improve after the days have been made normal. In most cases, the manner of life we recommend in this book brings normal sleep, especially if one remains out of doors a great part of the day and never gets up later than seven o'clock in the morning. Normal sleep can not be expected if one remains in bed until ten or twelve in the morning, altho it may seem rational after a wakeful night. Experience has proven that in the latter case midday rest is more beneficial.

Sleep is disturbed by pain, worry, emotions, overwork, or excesses of any kind. After the most pressing demands of rest are filled by the first few hours of good sleep, a little discomfort, as too much acid in the stomach or gas in the intestines, is likely to keep sensitive people awake. We are what our habits make us, and necessarily any one, who, for any length of time or for any reason, has his natural sleep disturbed, is likely to acquire a form of habitual insomnia or broken sleep, just as a mother, who for years has been used to having her rest broken by a baby, will wake at certain times during the night years afterward.

A healthy person can sleep when the time offers, in-

Cause and
Cure of
Insomnia

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dependent of noises and little disturbances, but nervous people often can not. Generally they are not so much disturbed by the noise itself as by their own anger, caused by thinking the noise should be stopt. This idea should first be given up; or they had better choose a quiet, dark room and put wax or cotton in their ears to exclude sounds.

Only those who in childhood were afraid of being left in the dark and, on this account, acquired the habit of sleeping with a light in the room, should continue to do so. A dark room gives much more thorough rest. Light itself acts as a stimulus, even tho the eyes are closed.

A room or a bed that is a little too warm or too cold may prevent sleep. Windows should always be kept open, but in extremely cold weather the skin should be protected as any irritation may interfere with rest.

After outside disturbances are removed, the poor sleeper should remove those which originate within himself. For instance, a sour stomach may be relieved by bicarbonate of soda, or cold feet by a warm foot-bath, or the bladder and bowels by evacuation. For hunger and exhaustion a cracker or a glass of hot water may be taken, or the time for supper may be changed, when one feels that it has been taken too near bed time or too long before. Many a patient has been cured of supposed nervous insomnia by an earlier and more easily digested evening meal. Coffee and tea are better dispensed with entirely, or taken only for breakfast, and not during the day. Alcohol keeps many

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people awake, while some get a better rest after drinking a bottle of good beer.

If one is self-conscious and finds it a strain to be in the company of others, it is better to remain alone evenings, occupied with any kind of favorite diversion such as playing solitaire, etc. Others are better off playing a quiet game of cards with congenial, not fault-finding, partners, or by conversing on indifferent subjects, which drive away unpleasant thoughts and fears. Many are benefited by a game of billiards, or by thirty to fifty minutes' walking in the open air.

People of self-control who are able at will to make their mind cease working, do not suffer from insomnia; those who are not able to control the action of their minds often sleep poorly, especially if they are burdened with unpleasant thoughts. It does no good to resolve to forget disturbing thoughts, as that only keeps them in mind in a negative form. It is necessary to supplant them by more pleasant or indifferent ones. At times of depression many people find it difficult to see in their lives anything that is pleasant; in such case they must concentrate their attention on some indifferent subject. First, they must relax the entire body and then, perhaps, picture to themselves an advertising sign with the word "sleep" on it, outlined in electric lights, where one letter lights up after another. This is easily done if one tries in his imagination to watch with eyes closed and in a thoroughly relaxed position, the letters of the sign light up and become

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dark. Thinking of nothing else he surely will go to sleep. Many similar devices, which divert the mind, are effective.

Reading a pleasant, wholesome story, especially with the light falling from behind on the paper, sometimes breaks the continuity and power of disturbing thoughts. Biographies, history, or books describing foreign countries, etc., are preferable to stupid or exciting novels.

If all this does not have the desired effect, a person accustomed to taking cold baths may take a cold plunge for five seconds and without drying himself put on his night-gown and go to bed. Very few people come out of a cold bath with the same thoughts they had on entering and the humidity on the skin, when it is not dried, acts almost like a wet pack, which is a great sleep-producer.

As the brain should do less work during sleep, so it should contain less blood than in waking hours. A warm foot-bath, or a cold foot-bath for people who have a quick reaction, draws the blood from the brain and gives to the brain-cells a more appropriate circulation for the quieting-down time. The same effect may be produced by putting on a pair of stockings wet with cold water, these to be covered with another pair of dry ones; this often works like a sleeping-draft. It has practically the same effect as bromids, without their disagreeable qualities.

Any one who knows the temperature of the bath suited to himself can procure a good night's rest

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by taking an indifferent bath of from twenty to thirty minutes' duration just before going to bed. Packs are sure sleep-producers. A cold compress on the neck often induces sleep. We refer the reader to Chapter X in regard to baths, packs, etc.

The Muller exercises bring sleep, but they must be taken slowly, paying especial attention to breathing and, if the room is not too cold, all with the body naked. The sponge-bath should be omitted, or, in summer, taken at the end of the exercise, when the patient should put on his night-gown without drying himself.

People who work very actively during the day should relax, or rest for a short time at midday, as sometimes the brain acquires by very tense work such an impetus that it can not quiet down at night.

Insomnia is often a fixed idea with patients. It may become advisable to break the habit by giving a sleeping-medicine for a few days or weeks in succession. There is not the least danger of establishing the drug habit if life is otherwise regulated according to the suggestions given in this book.

When there exists bodily pain, shortness of breath, infectious disease, etc., these naturally have to be cured as the cause before the insomnia disappears. People with heart disease sometimes have insomnia, as a result of spells of angina and shortness of breath. Sleep returns only after these symptoms have been relieved. As this may take a few weeks, the patient should not hesitate to take a sedative, if the doctor

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prescribes it, as heart and lungs need rest from the continual interference of the brain. Artificial sleep for a few nights advances such patients on the way to better health.

Sleep out-of-doors rests and restores one more quickly than that taken in the best ventilated room. In a badly ventilated room we re-inhale the substances of which nature tries to relieve the body during sleep. Even with the windows wide open, this can not be entirely prevented. For corresponding reasons, the sheets of bed patients used during the night ought to be ventilated and interchanged with others used during the daytime.

IX

SEXUAL LIFE

1. Victims of the conflict between the normal instinct, economic conditions, and Christian civilization.
2. Sexual individuality.
3. Causes of prostitution.
4. The sexual question an educational question.
5. Woman bears as fruit a child, like a fruit-tree its fruit.
6. Education for marriage.
7. The modern aspect of sexual diseases and of more nearly equal rights for the sexes as now less differentiated.

IX

SEXUAL LIFE

The continued existence of everything living is due to a law that every cell or unit of cells—plants, animals, or men—is ready and anxious to produce another of its own kind, either alone or in cooperation with another of the opposite sex. Man is subject to this law. A few can escape its stringency by substituting some product, as a child of the mind, for one of the body, and by following a manner of living which systematically strengthens the power of mind over matter. This fact is neither generally understood nor respected, with the consequence that the imperative demands of man's so-called animal nature come into conflict with our present-day moral and economic conditions. The result is that of three men in large cities one meets in business or society at least two probably suffer, or have suffered, from sexual disease, and that thousands of women are treated or operated on for trouble originated from the same cause. With the exception of tumors, some displacements of the womb, and the after effects of child-birth, all female diseases are acquired by infection from men.

Ninety-nine out of a hundred patients suffering from softening of the brain (paresis), have had

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syphilis. The increase in this sickness in the United States is tremendous. Locomotor ataxia is in all cases to be traced to the same trouble. A great number of cases of heart disease, chronic rheumatism, hardening of the blood-vessels, sudden death, and aneurisms, are the outcome of sexual disease. For the care of the offspring of the syphilitic and gonorrhic there is spent annually in the United States alone at least fifty million dollars.

In large cities one counts one prostitute to eighty to one hundred and twenty male voters. The twelve hundred licensed prostitutes in San Francisco are visited each week by from twenty to thirty thousand men; the six thousand tolerated ones in Chicago by from one hundred and twenty to one hundred and sixty thousand men; those in New York by double this number.

These facts are sufficient to prove that we must find a more wholesome way than the present of adjusting what is left of the animal in us to the demands of modern civilization.

These distressing conditions would have been fought long ago if people had not believed when their friends or relatives died or suffered from certain diseases that they were the very rare exceptions caused by overwork, a probability about as great as that a poor man will receive a present of a thousand dollars that is not due him.

Some people are born without sexual instinct. Others succeed in transforming the sexual into some

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other form of energy. Occupation alone is not sufficient. Something must be achieved, produced; that is, the labor must show some result—either decided self-improvement, or a business built up, a machine constructed, a kindergarten or some charity work efficiently managed, etc. Left-over energy must be used up by bodily exercise and food must be taken which does not stimulate the animal passions. Very little meat should be eaten, little alcohol, and few spices.

It has never been proven that permanent suppression of the sexual instinct is desirable, or that it is beneficial; but it has been shown that permanent suppression becomes for many the cause of bodily and mental harm and of much lowered working capacity. This is not a theory; it is a fact and is denied only by ignorance and prejudice. The problem is: how can men and women at the same time satisfy the demands of a Christian civilization and those of their bodies? For the present there exists no other solution than an early marriage.

By mistaking effect for cause we can not, by suppression of the evil of prostitution, solve the sex problem. Prostitution is only a result. It is a supply created by demand. There are six causes for it: first, incompetent teachers, who keep children in unsuspecting ignorance and do not inspire them with the right ideals; second, cheerless homes with the saloon as the only relief for a desperate lack of wholesome recreation; third, the example of men

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and women, sexually unprincipled, who enjoy the highest standing in art, literature, business, and society; fourth, wages insufficient for a young man to support a wife on and for a young girl to satisfy the necessities of a modest life without following an evil course; fifth, the indifference with which we allow the degenerate to propagate, and, sixth, the conventional code of sexual ethics we accept for men.

Every social question is an educational one. It is a duty to warn children against dangers of which they are ignorant. Normal men, like animals, adapt themselves to their environments. Only by special effort can they be prevented from acquiring the habits of their associates. It is too late to change the present generation, but parents should, in justice to the health of their boys and the happiness of their girls, teach them that what is wrong for one should just as strictly be forbidden, in fairness and honesty, to the other. The social evil must necessarily disappear when boys and men do not support it with their money.

The teacher must take his share of the responsibility. A good opportunity to approach the subject is given when he discusses the laws of health and the life of animals and plants. Many immigrant parents have a different code of sexual morality from that which is held as desirable in this country. They take their lesson from our fellow creatures, the beast

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in the fields; we believe in the elevation of man to a higher level, and the teacher should explain to the child why.

All over the world there are celebrations at the time when boys and girls enter womanhood and manhood. Christians and Jews alike have confirmations in church. The original purpose to have a ceremony at that time has been forgotten or neglected. It was meant to familiarize the child with sex-life. Many children now continue to wander in the dark; some go right; but not a few go wrong, become diseased, victims of quacks and hospitals, riddles to themselves and educators, and last, but not least, become later on the husbands or wives of unfit partners. A person who once thoroughly understood that he or she might become an invalid for life, and the parent of a degenerate child, by marrying a diseased person, probably could not be induced to do so by the most violent passion.

The different code of sexual ethics for men and women has been accepted because it has been thought that men's and women's natures were different. This is not entirely true.

A girl has a mother who has borne children; her grandmother, great-grandmother and for many other generations her ancestors have borne children. She, too, has been born with a body which, at a certain age, is blooming; it is pushing and pulling to bring forth a fruit—the child. This energy, unused, and, not wisely directed, in the course of time may

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turn inward, overstimulate or paralyze functions, dry up the body, cause restlessness, depression, disordered digestion, a deceitful, mischievous disposition, eruptions of the skin, pain on the top and the back of the head, impoverished blood and most frequently a great variety of disturbing nervous symptoms of the heart. These symptoms are treated by physicians as sickness, while they really are a sign of health, in so far as a healthy body rebels in that way against suppression by an abnormal life.

When a woman bears an illegitimate child (often conceived not for love of a man, but because an exquisite motherly instinct was longing for a baby to rear), such a woman is shunned by society and made an outcast; compared with this, the burning of widows in India is less cruel. When there is immorality, but no child, the sensitive conscience of some women troubles them until the end of their lives for having committed the sin which society willingly forgives in men.

Early marriages are considered a failure by many who doubt whether, with modern opportunities for the education of women, it can be expected that two people shall feel the same toward each other when they marry and before the character is firmly formed as they will ten or twenty years later, when they may have developed in some entirely different directions.

Married life can not be entered into to-day with

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the same expectations as a hundred years ago. Women and their station have changed a great deal since then. Formerly a husband owned his wife much like a piece of property. She was generally willing that this should be so, but, if not, she was compelled to abide by his wishes. To-day women expect a certain amount of freedom and can be compared to beautiful flowers, but no longer to clinging vines. But most men wish in their hearts, without realizing it, that their wives would give up willingly all their freedom, as a Chinese woman is necessarily obliged to do when her feet are crippled, or a Mohammedan woman when she is shut up in a harem.

Education for marriage, that is, the right understanding of what can be expected and what must be given, is needed. This could probably remove most of the troubles that to-day cause unhappiness and divorces. The main points are: to be rightly mated; a conscientious effort to make each other's life happy and to be mutually helpful; implicit confidence in each other; a division of work and children. For the rest freedom should be given so that each may live according to his own individuality and not be forced to cripple his personality by living a life of renunciation. The danger of mismatched couples is that the husband becomes untrue and the wife either untrue or sick, or both, provided they were not born without sexual needs, a fortunate thing in such cases, when at least they are likely not to irritate and

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humble each other and stay in the home. Thorough sympathy and partnership may be expected, but not a thorough understanding of the most intimate thoughts and ideals. Men and women are different and, if complex, neither can have more than a general idea of the inner life which the other is leading. While the manly man may complement his wife, only the effeminate man may understand her, but he will be a disappointment in most other directions. The same holds true in the case of the womanly and the masculine woman. From the lives of great men we learn that all felt lonely at times, but that the search for a soul-mate generally turned out a fool's chase.

People of decent habits, who are true, who love each other, and enter into marriage at the age of twenty with a firm intention of adjusting themselves to each other's character, and to make sacrifices as far as consistent with the real necessities of their own individualities, will still be happily joined at seventy, even tho they may have grown different in knowledge and experience. Those who marry young only because infatuated, tho uncongenial in character and tastes, necessarily drift apart. When the passion which alone attracted them to each other is no longer a strong, vital force, they have nothing left in common to hold them together.

Even with present-day liberties, the single blessedness of youth becomes in later life a God-forsaken loneliness. A marriage late in life brings only an

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unsatisfactory substitute for that grateful understanding and loving consideration which may be born earlier of many years of common joy and sorrow attending the existence, protection, and happiness of a family.

For the wide discussion of sexual life at the present time, there are two reasons. The first is two medical discoveries. Professor Wasserman made ten years ago a test by which it was shown that syphilis germs may live many years after the disease was acquired, and then often help to produce the saddest diseases with which the human race is afflicted. Thirty years previously Professor Neisser had discovered the germ of that other most prevalent sexual disease, gonorrhoea, which, as we know to-day, is the most common cause of invalidism of women and of blindness in children. These facts previously had not been known. Public spirited men and women naturally became interested in this vital subject, after they once understood that the worst forms of insanity, heart and spinal diseases will disappear when we succeed in stamping out sexual diseases.

The second reason is that we have entered upon a period of evolution when the minds and characters of men and women are far less different than they formerly were. Most reasons why a woman should be unfit for the duties and rights for which a man is considered fit have been removed.

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The male and female embryo are, in the beginning, alike. Nature then makes the sex organs different and leaves the rest of the body and mind of both sexes similar. Later in life they grow different, the degree of difference depending, to a great extent, on the manner of living. Until thirty years ago a woman's life was, from first to last, entirely different from that of a man. She took care of the home and reared the children. He attended to everything else. Both had, for the greater part of each day, different environments and went through opposite experiences; the women leading a far more sheltered life than now, when they fill, as employees, stores, offices, and factories, doing the same kind of work as men. Both at present have the same struggles and surroundings; from childhood up, body and mind practically receive the same training. The result necessarily is that both grow more alike. From a biological standpoint, there is no good reason to believe that the anatomical condition of the pelvis alone renders women less fit to vote than men. Neither have we any longer the moral right to allow one sex to do what is forbidden to the other, both having practically the same duties.

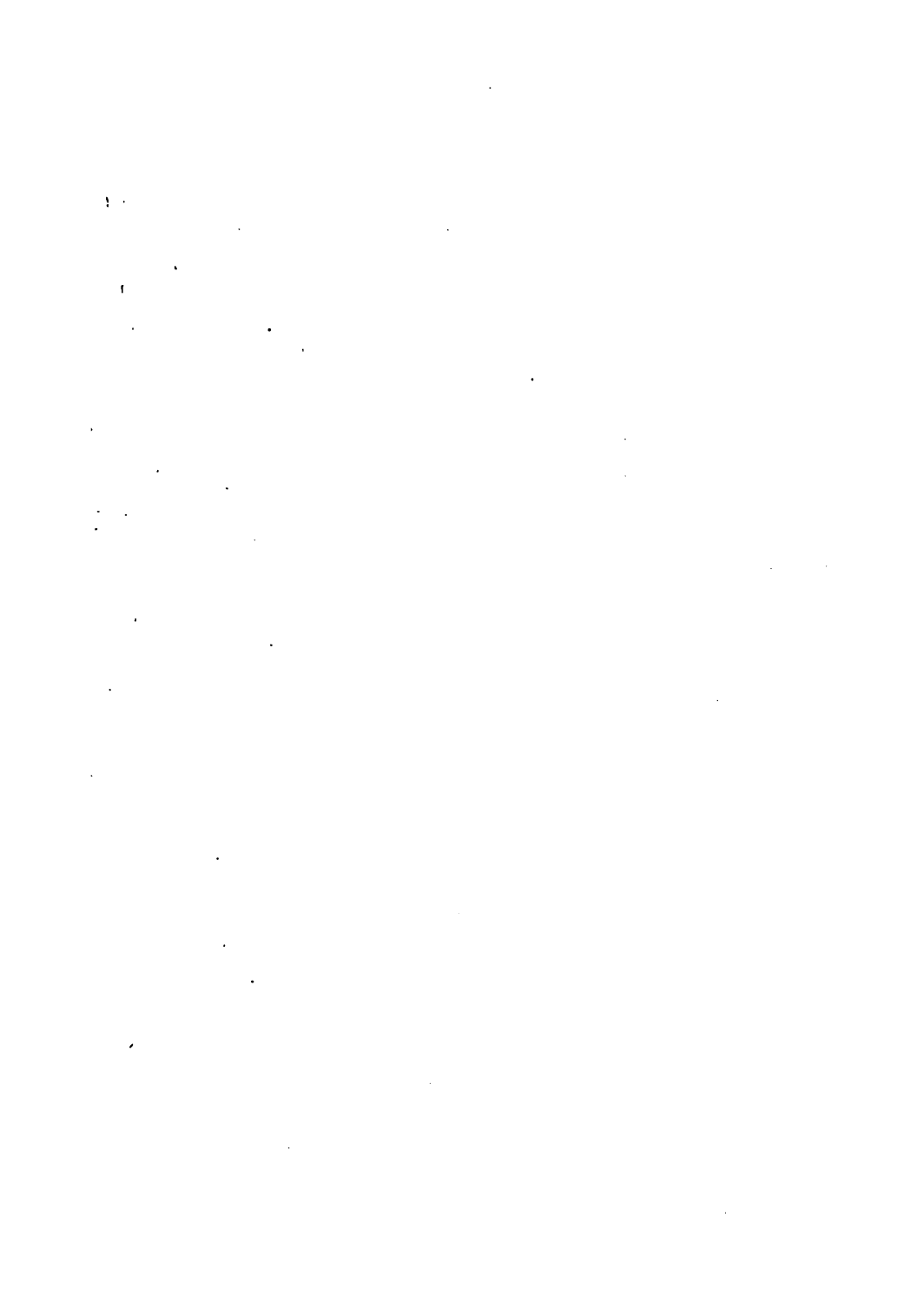
At present sexual starvation makes many good women abnormal, and sexual errors many men insane. We close this chapter with a quotation from Guglielmo Ferrero:

“Those on whom fortune has smiled, who have

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succeeded in life and are tranquil possessors of the good things of this world are, as a rule, reluctant to believe that, in their midst and side by side, are others who live in misery and that there are many who may, not without justification, complain about their lot. There is a sort of unconscious cruelty in the optimism of healthy, happy people.”

Such persons do not wish to be disturbed by thoughts of lonely tears, blind children and insane men, but they should kindly remember how they can render great service by informing themselves and the world of the true facts, since public opinion alone can strike the shackles from the unfortunates.



X

THE SKIN AS A PROTECTOR

1. Some important functions of the skin.
2. Air baths harden, strengthen, and quiet the nerves.
3. Lukewarm-water baths cleansing, quieting, and anti-con-
stipating.
4. Cold baths and by whom they may be taken.
5. The effect of ocean baths of different duration.
6. Sweat-baths.
7. Hot and cold applications.
8. The heart-heal (Nauheim) baths.
9. A new lease of life.

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X

THE SKIN AS A PROTECTOR

Practically all the knowledge people have with regard to the skin is that a beautiful skin is attractive, and that it is proper to make it clean and agreeable when it has become ugly, greasy, or perspires too easily. Some remember that if two-thirds of the skin were burned one could not live, and but very few realize that it performs in a wonderful way a great variety of important functions.

The Function
of the Skin

Let us imagine that the sensibility of the skin has been lost. We then would not know whether a needle were lying between, or sticking into our fingers, whether the finger is cold or warm, wet or dry; nor would we be able to enjoy the touch of a friendly hand. Most of our communication with the outside world would be cut off. This happens in certain diseases, where, on account of a loss of sensibility, the patient may go around with a big hole in the sole of his foot, or with a needle sticking into the finger, without knowing it.

The skin is a main factor in the distribution of heat and blood, being provided with a network of many millions of blood-vessels which act like radiators of a heating plant. They automatically close and open more or less, depending on the outside

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temperature, and the necessity of giving off heat when there is too much produced in the body. It is clear that the skin becomes, by this mechanism, the means of allowing the system to continue in the same equable temperature for which its organs are naturally fitted, independently of the weather. A skin unable to adjust itself to the surrounding temperature shifts the current of blood to parts where the blood-vessels have been previously weakened by sickness. For instance, if a person's feet become chilled, the blood, which can not flow easily in blood-vessels contracted by cold, will be shifted to somewhere else. Naturally it goes to the point of least resistance, namely, to blood-vessels whose elasticity has been weakened, generally, by a previous sickness. A person who previously suffered from sore throat is likely to have a new inflammation; another who once had neuritis in the arm will again feel pain in the old spot, etc. This is likely to occur when any part of the skin which does not adjust itself properly is exposed to cold.

The skin, with its millions of pores, offers a large surface where excretion and evaporation may take place. The vaudeville artist who varnished his skin so that he would look like a bronze statue was suffocated by waste which needed, and could not find, an outlet. The skin of every person gives off an odor as characteristic as his facial expression. Police dogs can trace people for miles, even after the people have just taken a bath. Sensitive people are sometimes

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affected by a person's odor as much as by his appearance. Experienced physicians can diagnose many diseases by their odor. The skin relieves, by evaporation and perspiration, the kidneys of work. In scarlet fever, in some forms of typhoid, measles, etc., we can tell by the appearance of the skin if the patient is more or less dangerously sick. Altho such diseases are manifested on the skin, the whole system is affected and it was formerly thought that nature used the skin to throw off the poison. Following this trend of thought, physicians used liniments to make eruptions on the skin, hoping, in that way, to draw the disease from the inside to the outside and thus remove the danger.

Any subject in nature which is studied thoroughly becomes fascinating. An expert would enjoy writing about the wonders and beauty of the skin. Here we wish only to open new sources of interest and remind the reader that the skin is an important vital organ.

Air and water are the means we possess of keeping the skin beautiful and in good condition to perform at all times its proper functions. Air-baths are almost unknown and unused, altho an excellent tonic and sedative for the nervous system and the best means of accustoming the skin to changes in the weather. Water-baths mean to the layman cleanliness and enjoyment. They are a source of danger and torture when wrongly prescribed by

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a physician, and constitute a great help in the conservation of health and the cure of disease, if judiciously taken as advised by a man who knows.

The oldest books dealing with the care of the body recommend baths. To make sure that people would wash themselves sufficiently, most religions demanded ablutions as a preparation necessary to effective prayers. For thousands of years, people have traveled to mineral springs and every century two or three men have become celebrated for cures they performed with water. The air-baths, however, which the Greeks and Romans favored and advocated, were entirely forgotten for over fifteen hundred years.

Air-baths

Man is born with a skin intended for life in the open air. Coverings were originally used only to assist in the adjustment of the body to climate. They were never intended to form a continual and permanent second skin. Air-baths simply mean exposing the naked body to air. In our climate they should not be taken for a longer period than ten minutes at the longest in cold weather; ten to twenty minutes in warm weather, and longer only when the naked body feels comfortably warm without exercising. Arms, legs, and hands should not be kept quiet in an air-bath of less than ninety degrees temperature. When, after dressing, the body feels chilly, exercise should be taken until one feels comfortable. With the power of adjustment which

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the healthy person has, he could remain naked all day in a temperate climate; but an invalid would be harmed if the length of time and the temperature were not taken into consideration.

Altho new-born babies can not afford to lose heat, and weak ones may be killed by exposure to cold, they are generally strong enough after the fifth week to remain naked every day for two to ten minutes in a room with a temperature of seventy-five degrees. Later on they should be allowed to play around the room naked for at least twenty minutes each day. Healthy children and adults should make it a habit to remain naked morning and evening for at least five minutes while making their toilet, which gives sufficient exercise to keep the body warm. This habit will harden the skin against catching cold.

For nervous people who find it hard to be quiet, air-baths are a better and more powerful sedative than any kind of drugs. Nervous people generally find it easy to remain contented for several hours in a comfortably warm room when perfectly naked. The air invigorates them and, besides, the skin has an opportunity to throw off easier the irritating waste. People who are delirious from acute sickness and insanity often become quiet when the skin is exposed to the air. Up-to-date alienists hardly ever use the straight-jacket or stupefying medicines; they keep patients naked in large rooms of about eighty degrees temperature, with warm water in individual

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basins arranged on the floor, which the patient may enter whenever he likes. The most restless and excited generally soon quiet down.

A hot summer day is the best time for people with tender skins to begin their air-baths, which refresh and do not fatigue the body like cold baths of the same length. Altho efficient indoors, air-baths are more vitalizing when taken out-of-doors. Four stakes and a canvas around them are all that is needed to set up an open air-bath.

Care must be taken not to expose the body, especially the head, for any length of time to the rays of the sun. Sun-baths are a powerful irritant to the skin, often causing inflammation and eezemas. If, after a sun-bath of twenty minutes a patient is wrapt in blankets, he will perspire and easily lose from four to six pounds in weight. Sun-baths should be reserved for healthy people, or taken upon detailed prescription of a physician. For babies with rickets and older children with tuberculosis of the bones or joints, air- and light-baths achieve better and more permanent results than medicine and operations. There are sanitariums in Switzerland which make a specialty of treating such diseases in this way. The results have to be seen to be believed.

After all that we know about the skin as an excretory organ, no explanation is needed as to why cleansing baths and ablutions are needed. Not

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only are they proper, but an absolute necessity for health. In Europe and South America skin diseases and syphilis are found in much uglier forms than in the United States, undoubtedly because our people are, to-day, the cleanest of the white race.

Cleansing baths ought to be taken at a temperature of from ninety-two to ninety-six degrees; some need them a few degrees colder or warmer to be perfectly comfortable. They should give the feeling neither of chilliness nor heat. After a person has found out just what his "indifferent" bath temperature is, he can, if necessary, quiet his nerves with such a bath, regulate his circulation, and cure his constipation, which in many cases is the result of a cramped condition of some parts of the intestines. Taken daily for one to two months, for fifteen to twenty minutes, with the Muller exercises and the prescribed diet, they always regulate the action of the bowels.

Cleansing and
"Indifferent"
Baths

To find the right so-called "indifferent" temperature for a bath, we must bear in mind that the temperature of people differs, and must allow several degrees for the heat the body continually gives off. For example, if a person has an average temperature of ninety-seven degrees, the "indifferent" bath should be between ninety-three and ninety-five degrees; for people with a temperature of ninety-five degrees, the bath temperature would be nearer ninety degrees, etc. If baths are given hotter or colder, they either stimulate or weaken and do not achieve

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the effect, which is only obtained when the body is comfortable and relaxed.

Cold Baths During the last few years cold baths have not been recommended as much as formerly, when they were the favored prescription for most forms of nervousness and hysteria. It is true that they give a shock to those who are not used to them. To those who have taken them from childhood they mean no more than the cleaning of the teeth, or any other part of the daily toilet. They may be omitted in cases of nervousness, but should not be forbidden as a general principle.

Babies from the eighth week, after the cleansing bath, should be washed off quickly with cold water, and from the tenth month should, if healthy, be dipped for a part of a second, but not longer, in cold water. Then cold baths can be kept up all through life, and have many points in their favor.

Many excellent specialists in children's diseases advise keeping children clean, but not giving them baths for other purposes. They quite correctly say that a rightly fed child does not catch cold and that the air-baths are better than water-baths to the human body. However, cold water-baths have some merit. A short dip in cold water contracts the blood-vessels of the skin. The nerves report at once to the automatic centers in the brain "cold all over the skin." The blood-vessels are then widened and more blood is sent to the surface of the

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body to bring back the normal temperature. For this reason cold baths are good training for the temperature-regulating apparatus, causing it to respond quickly to changes of temperature. It should never be necessary to dry the body carefully after an application of cold water, for the purpose of warming it, as the reaction alone, without friction, should make the body warm.

The colder the bath the greater the reaction and, consequently, the warmer the body becomes, provided one remains in the water for only a few seconds. After making an ice-cold snowball the hands become hot, but in a cool rain they are clammy and cold.

Cold baths are forbidden to people who anywhere in the circulatory apparatus have a weak spot. In that moment when the cold water first touches the skin, the blood-vessels contract, the blood is prest out and pressure having thus been increased somewhere else, is likely to cause a breakage, if there are hardened blood-vessels, or if a blood-vessel has been eroded by ulceration, for instance, in certain diseases of lungs or stomach.

Cold baths should not be prescribed to nervous people who are not accustomed to them or who fear them. They feel weak afterward on account of the excitement and the shock. People accustomed to cold baths from childhood very seldom have rheumatism, and for that reason are less often affected with heart disease.

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As the shock connected with a cold application corresponds in degree to the temperature of the water and the size of the area of the skin covered at one time, cold ablutions are endured better by nervous people, if one part after another is sponged, especially if the cold sponge or towel is brought slowly into contact with the skin. The only trouble is that people are likely to take cold more easily, as the giving of a sponge bath takes longer than does the plunge of a few seconds.

Ocean Baths People who can stand cold baths may bathe in the ocean where the salt and the motion of the waves gives quicker reaction. They should not remain too long in the water when it is cold. If they stay beyond the first reaction, heat is taken away from the body, which has to be made up by increased oxidation and tissue-change; this is why prolonged cold baths, taken for weeks in succession, make people lose weight, and weaken those who have no surplus of strength.

In southern climates, and wherever the temperature of the water is from seventy to eighty degrees, ocean-baths may be taken for hours at a time and substituted for indifferent baths, as what is lacking in heat is made up by the presence of salts and the massage by the waves. It is not advisable to take a cold bath unless the body is warm when entering the bath.

Chronically cold hands and feet should not be

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tolerated. The blood and heat which are lacking in one place are stored up in another, making it ready soil for bacteria. In rare cases cold limbs are the result of general weakness and impoverished blood; in the vast majority, they are a sign of insufficient exercise, of poor digestion, thick overfed blood, and nervousness. It is interesting to note that the circulation of overfed people is much improved when they are bled or when the diet is cut down. From hot-water bottles and warm foot-baths the feet borrow heat and remain warm for a time on account of the relaxation of the blood-vessels, but not permanently. A better result may be gained when two foot-bath tubs are put beside each other, one filled with cold the other with hot water, and in which hands and feet are bathed, one minute in the hot, then immediately two minutes in the cold, repeating the change three times, and finishing with the cold if the patient is able to take a brisk walk for half an hour, or with the hot if he has to remain quiet. To walk barefoot during the summer months, for a short time each day, improves the circulation for the entire year.

Cold Hands
and Feet

One or two sweat-baths a month can be recommended to people who perspire little, lead a sedentary life and eat more than they really need. The most easily tolerated sweat-baths are given in an electric-light cabinet and lasting for from fifteen to forty minutes. The head must be kept cool and

Hot Baths and
Sweat-Baths

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the feet warm. An indifferent bath of eight minutes' duration should follow immediately, then a rest of twenty minutes or longer, until the body has regained its normal temperature. The weight of a body, which contains too much liquid, can be lowered from two to five pounds by one sweat-bath. This shows how much these baths can do for people who really need them.

A sick heart, hardened blood-vessels of the brain, and sick lungs, do not adjust themselves quickly to a changed circulation, which becomes greatly altered by hot and sweat-baths. The head may become congested and a patient die suddenly from the breaking of a blood-vessel in the brain or from exhaustion of the heart.

Local application of heat, hot towels, and hot-water bags relieve pain and improve the circulation; they may be used to advantage in angina, when the blood-vessels of the heart are spasmodically contracted. For palpitation, an ice bag over the heart does good; which should, however, never be put directly on the skin but wrapt in a piece of flannel. Cold, if sufficiently intense, deadens any pain but, if applied a long time, will contract the blood-vessels so much as to make it impossible for the blood to circulate, which may destroy the skin and underlying organs.

Certain salts, gases, or chemicals, added to the bath-water, have healing influences on the surface of the skin; or may become absorbed and relieve

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some internal disorder; or may have a special effect on the nerves and circulation, as do the now so celebrated Nauheim, or carbonic acid, baths. A Nauheim bath contains bicarbonate of soda, a variety of salts similar to our cooking salt, and carbonic acid gas. Every one who has taken a bath in ordinary and in salt water, knows that the body gets warm much more quickly after the salt-water bath. It is experimentally proven that acids, even when much diluted, applied to the skin, make it warm. Salt and acid contained in the water take the place of from four to five degrees of heat. The Nauheim baths, therefore, can be taken from four to five degrees cooler than an ordinary water bath, and have the good effect of the warmer bath on blood-vessels, muscles, and nerves, without its drawbacks.

By relaxing the blood-vessels all over the skin, these offer more room for the flow of blood, so that the heart can take care of the circulation with much less effort than when the blood-vessels were contracted. When lying in a Nauheim bath the blood flows from the abnormally congested heart, lungs, and brain of a patient into the blood-vessels of his skin, which is a great gain for the general equilibrium of the body. The effect of a Nauheim bath does not cease when the patient leaves the bath. Every day a little gain is stored up, and, after from four to six weeks of treatment, often the whole circulation and heart-action remain greatly and permanently improved.

Heart-Heal,
Nauheim Baths

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A Nauheim, or any other kind of carbonic acid bath, is to be recommended only when the heart has some reserve strength and the patient is able to walk at least two hundred steps and to talk five minutes without becoming short of breath. Nauheim baths are all wrong and do harm when the patient is dropsical, unable to lie in a half-horizontal position, or has badly hardened blood-vessels which are unable to stand any sudden change of circulation. Such patients must first be helped by other means; Nauheim baths may be started at the proper time.

A Nauheim bath may be given on two days in succession and omitted on the third day. The temperature should never be higher than ninety-four degrees and each third bath should be cooled down two degrees until a temperature of eighty-nine degrees is reached. The first time the patient remains in the water for six minutes; the length may be increased each time two minutes until he stays fifteen or twenty minutes. The head must be kept cool, the room well ventilated and at a moderate temperature. After the bath, a rest of one hour should be taken and only a little exercise engaged in during the day. The doctor should be present at the first bath to watch the heart-action, which can be done later for many patients from the same place by means of an apparatus called the "heart controller," which is an especially constructed microphone connected with the telephone.

Nauheim baths may be taken in Nauheim, or in

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any other place where there is a carbonic acid salt-water spring, or the chemicals may be purchased in tablet form at a drugstore and added to ordinary water.

No one who has had any experience with Nauheim baths, taken in connection with proper exercise and diet, doubts that they have prolonged the life of many patients.

An excellent remedy for poor circulation, unsatisfactory sleep and for the removal of impurities from the blood are "packs." A three-quarter pack is given by spreading on the bed a warm woolen blanket long enough to reach from the arm-pits to the ankle. Over the woolen blanket a linen sheet is spread, reaching from the feet to a point five fingers below the arm-pit. This linen sheet had been moistened thoroughly with cold water and wrung out as dry as possible. The patient lies with the arms held over the head on the wet sheet, in which he is wrapt; then he is wrapt in the woolen blanket, after which he puts his arms down and the whole body is covered with two more blankets. His position should be comfortable, the upper part of the back and head elevated as when asleep. A cold compress must be put on the forehead and changed whenever it gets warm.

In "packs" the body gets warm after a short time, and the heat and increased blood-stream running from the congested inner organs into the blood-

Packs and the
Making of a
New Man

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vessels of the skin, gives the same effect as the Nauheim bath. The difficulty is that the "pack" must be taken with cold water, in order to insure quick reaction, and people not accustomed to cold water often do not like them or do not stand them well.

"Packs" open the pores and enable the skin to throw off into the wet sheets much waste. Uric acid and medicines like iodine or mercury, if taken, can be found on the sheets of the "pack" removed from patients. The "pack" is given two to six times a week, for from three-quarters of an hour to two hours. The patient may sleep while in the "pack." A longer period than one hour is not good for patients with heart trouble. When the kidneys and bad blood are responsible for the sickness, the weakening effect of a "pack" taken for longer than one hour need not cause worry, as the strength comes back quickly and greater than before, after once the impurities are removed from the body.

There is practically no better way to get rid of the "old Adam" and regenerate the body than a four to six weeks' cure with "packs" and a restricted diet. If, after such treatment, the patient begins to follow our régime he soon feels more efficient in every way, and last, but not least, is in possession of a prolonged lease of life.

Water-treatment or hydrotherapy is a science with its applications for each sickness, just as we use

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different kinds of drugs for different diseases. We can not deal here with douches, salt glows, baths with mud, etc. They must be prescribed by a physician who has studied this way of treating diseases; irreparable harm has been done by inexperienced men.

XI

MIND

THE GROWING OF A SOUND MIND:

1. Distinction between sanity, nervousness, and insanity.
2. The importance of early character-training.
3. Education in self-control; self-inhibition as a fault and self consciousness.
4. Education in concentration.
5. Training in "doing," as opposed to "intending."
6. The individuality unchangeable in later life.
7. The heavy burden of the American school-teacher.

THE ONLY CURE FOR NERVOUSNESS:

1. Offered by obedience to nature's six demands:
 - First demand: time (patience).
 - Second demand: obedience to the law of evolution (self-improvement).
 - Third demand: a normal sexual life or its proper equivalent.
 - Fourth demand: obedience to the gregarious (social) instinct.
 - Fifth demand: food the body is built for.
 - Sixth demand: due consideration for skin and muscles.
2. Aids in following the above demands.
3. How will-power is grown.

THE THREE GREAT NERVOUS FEARS:

1. Fear of other people's opinion. How to judge one's self.
2. Fear of insanity, sickness, and death.
3. Fear of poverty.

XI

MIND

THE GROWING OF A SOUND MIND

Until now we have dealt, in regard to the mind, merely with the common sense, tho unfortunately often neglected, fact, that the finest character and spirit depend on the health of the body, and that unsuitable food, sickness, excess of liquor, lack of exercise, etc., may make a mean and stupid person out of a naturally good and bright one.

We have further mentioned that every part of the body is regulated by its center in the brain and that this brain-center can, by its own action, produce or pave the way for sickness in every part of the body, while, vice versa, every sickness keeps a brain-center stimulated or, in sensitive people, the whole brain irritated. In the following chapters we discuss the mind independent of the body.

Our thoughts and actions have the same effect on the nervous system as food on the stomach. A normal nervous system makes certain demands on us which must be satisfied to insure a healthy mind for a healthy body.

A mentally and morally sound person has rational ideas and ideals, the strength to live accordingly

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Difference
Between
Nervousness
and Insanity

and the power to control with reason his actions and emotions.

Nervous people are unable to control with reason their emotions and actions, in spite of knowing that they are in part, or altogether, wrong.

An insane person does not realize that his ideas and actions are in part, or altogether, wrong and has, therefore, not the intention, and often not the power, to change them or to control his impulses.

People who are born right become efficient and a joy to themselves and to others regardless of the environment in which they grow up. Others, who have inherited from a long line of ancestors possibilities for good and evil, are made efficient and happy or incompetent and miserable for life entirely depending on the training they receive during early childhood.

Early
Character
Training

The first years of life are the deciding ones. At that time when children learn to understand and to remember, their brain-centers are shaped and we know, from experience with abnormal babies, that centers which were practically lacking at first can be developed at this early period. At the same time, the centers of will-power and of self-control must be built up. Competent teachers, employers, judges, and physicians agree that people fail in life more often from lack of will-power and stability than from lack of knowledge or good intentions.

Every one is a combination of good and bad. The

THEIR CARE AND CURE

worst criminals, except the morally degenerate, have moments when they honestly resolve to do right, but fail because they are unable to control the bad part of their personality. This power of control may be congenital, or may be developed in the first three years of life by first training a child to obey others; later the child substitutes for this other person his own better self, and has no trouble in controlling his baser impulses.

To show at what an early age obedience can be taught, we mention the fact that under the supervision of a competent person, a baby who vomits and screams until exhausted often changes to a sensible, obedient little creature, while it was an uncontrollable disturber of the whole household, being in charge of a self-sacrificing mother who indulged its every whim.

Teaching obedience is not identical with enslaving a child, or taking away his freedom; there are things which parents know better than a two- or three-year-old youngster—that is, what to eat, how to wash, how much to rest, sleep, etc. In these respects it must be understood by the child that he is to do what he is told.

Only what really is wrong should be forbidden. A child should never be told to do certain things simply because of the likes or dislikes of a teacher or any other adult. Fear of other people's opinion can be made a habit; it destroys the independence

Self-inhibition,
Self-consciousness, and Lack
of Self-reliance
Formed in
Youth

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of mind and action, makes people hypocrites on account of the wish to appear as expected by others, and is, in the opinion of the foremost alienists, the cause of nervousness, of incurable fear-thoughts, and a personality divided against itself. This habit of fearing to displease, developed in early youth, later on called over-conscientiousness or cowardice, unfits for the work in which independent action is needed, and breaks people down when placed in a position of leadership, condemning them to remain all their life in a position below the standard they could have reached, if they had been self-reliant.

Children who are corrected too much are inclined to watch themselves too carefully and to become self-conscious. A bodily healthy person is not conscious of his body, a nervously healthy one not conscious of his personality. The self-conscious child becomes the over-conscientious man of the worrying disposition.

Unreasonably often repeated "don't," "do not do that," "why do you do that?" etc., make the center of inhibition in the brain over-sensitive and domineering; then perfectly natural sensations and unimportant acts are inhibited until closely scrutinized in regard to their cause, general aspect, and effect. This causes self-control to degenerate into the habit of constant self-inhibition, on account of doubt in the correctness of one's impulses. Such people have the same difficulty in going through life smoothly as a teamster would if he had to drive a wagon for thirty

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or forty years, over all kinds of roads, with the brakes always tightly set.

Lacking confidence in themselves, they naturally can not inspire others with confidence. Conscious of limitations which trouble nobody but themselves, they begin to hate their own personality, and, as every one has to spend much time in his own company, they do not get much pleasure out of life, except when entertained by others and able to forget themselves. A self-satisfied, pleased countenance simply expresses satisfaction with one's own personality; altho such people may be great fools they are generally more welcome than a better man who looks troubled only because he does not come up to his own expectations.

This same lack of self-reliance cultivated in youth may cause such a habit of fear that, on important occasions all through life, the worry absorbs a large part of the brain's working power, reducing the amount required for the work to be done. For instance, in an examination, fear may render it impossible for a child to answer questions, previously answered without difficulty, or a person gifted with a fine voice from ever making a success on the stage, while praise, rightly given, would have helped the natural ability to assert itself.

To achieve the best possible results the whole mind has to be concentrated on one end. Analyzing the qualities which make for success, we find that broad

Education,
Concentration,
and Energy

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learning and intelligence with little concentration is less effective than moderate learning and intelligence, when will-power and concentration weld them together into one strong lever with which to push one's self and a business untiringly forward.

A life-long habit of poor concentration is often developed in early childhood by continually distracting the child's attention by too great a variety of diversions, when it can just as well become used to being occupied for some length of time with one subject. Lack of concentration and continuity in thought and action are, in later life, characteristic of that type of neuropaths who plan much, do little, and never get the full benefit of anything. When they should be enjoying themselves, they think of something sad; when they want to sleep, they remember their work; when they should work, they look to see what other people are doing; when their work is just ready to bring returns, they give it up.

Energy means to put thought into action, which is practically impossible without will-power and concentration. Tho all possible freedom is given to a child, it should be trained to make an earnest effort to carry out any sensible plan it has made, regardless of what it is—whether to stay in bed until ten, or get up at eight; to play or to stay at home; to play ball or to do a little sewing. The main thing is to follow up his plan with action. For this purpose manual training is especially recommended, as a child sees a thought take form under his own eyes,

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and also learns the necessity of patience and acquires the ability to control his little hands, which is a step toward controlling the whole physical part of his personality and the all-important coordination of his faculties.

Self-control, energy, consistency, and patience, inculcated in youth, become automatic parts of the personality, and add much more to efficiency and happiness than the inheritance of much money or the ability to converse in ten different languages.

After the sixth year the personality can not be changed; "individuum est ineffabile;" altho the outside manifestations may be modified by knowledge and reason. For instance, a boy, who was born a coward and not trained to be different in his early youth, may become a distinguished soldier or prize-fighter by the following method of reasoning: he tells himself, first, that he is bodily and mentally just as strong or stronger than others; second, that he may in that particular profession succeed on account of circumstances and reach what his ambition strives for; third, that it would be self-destruction to show cowardice after he had attained a certain position. Sooner or later and always in little traits, when he thinks himself unobserved, the true character can, however, be recognized as different from that of the naturally fearless man.

The modern child does not consider itself under any obligations for being born. Being without a compelling religion and possessing a dissecting mind,

Individuum
est ineffabile

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it is, instead, grateful for knowledge, the ability to do things, a healthy body, a cheerful home, and an understanding soul to whom it can turn when lost. The child is sadly disappointed when it finds parents lacking in fairness and truth. It soon realizes that parents' love is often an animal instinct, sometimes a conventionality, and quite commonly only worry and fear for a good name.

If parents only knew how much their own and their child's success and happiness depends on the first years of life, they would make the light, but time- and trouble-saving effort of bringing the child up properly. Later they find greater difficulties, as experienced when trying to teach an old dog new tricks.

In this country where the standard of a man's work is often measured by his money-making ability; where the newspapers publish daily news about men who have high standing in the community, in spite of dishonesty, and where thousands of children of immigrants have more knowledge than their parents, the public school must instil into the mind of the child right aims and ideals.

In Europe there exist in most civilized states four great educational factors: first, the school; second, religion, whose lessons every child has to learn; third, military service, giving to men two years of training in self-control and hygiene and, fourth, the home. In this country we do not have obligatory

Heavy Burden
of American
School-teacher

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military service and attendance at religious lessons. The child of the immigrant makes progress in the first American generation many times as far as it would have gone in three generations in the old country, and can not possibly find guidance through the perplexities of American life from its ignorant parents; while in Europe they can, as, with its slower progress, the situation differs little from one generation to another.

What is performed in Europe by four educational factors, must be done in this country by one, the public school. That there is much room left in our public schools for improvement, results from the fact that many high-minded men and women, who are anxious to teach, can not, in fairness to their own and their family's future, afford to work for the miserable salaries now paid. The government, in justice to the coming generations, should pay to teachers at least half the amount the European nations have to spend on church and military service, giving them an income equal to that of a good physician or attorney. Many so-called great physicians spend most of their time in keeping people alive who might be happier dead and in curing others who, with proper information and training, never would have been ill. Many a prominent lawyer squanders his whole life in keeping people out of jail who really belong there, and in adjusting difficulties which never would have arisen between people properly reared.

The individual and the state make a good invest-

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ment in paying high salaries to competent teachers. Conservative criminologists believe that even of criminals forty-five per cent. could have been made normal by proper early training. Sickness and misery disappear in proportion to the increased efficiency of teachers and parents. Health and the social question are educational questions.

THE ONLY CURE FOR NERVOUSNESS

Those who, by fault of inheritance or education, have missed being sound bodily and mentally, must not expect to become so through anybody else's efforts; they must work out their own salvation by understandingly following the demands nature makes for its work of reconstruction.

The first demand of nature is for time, which means patience, a virtue lacking only in those who do not understand the meaning of "time." Everything that exists has needed time to grow. It takes time to make conditions ready even for the most sudden catastrophe. Our works are the fruit we bear and their growth needs time. In literature, mechanics, art, all really admirable achievements required years of incessant effort by great men.

Nature requires time to rebuild tissue, just as it needs time to make a child grow. Any one who has been ailing for any length of time can not expect to be well inside of a few days. We must make an

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exception here of diseases in which, by an operation—for instance, the removal of an appendix, a tumor, etc.—the cause of the trouble can be removed; or where we have remedies which, like some anti-toxins, or possibly arsenic and quinine, kill certain disease-producing bacteria in one deciding battle. For the care of all others we must allow time. Even in so-called functional disorders where, seemingly, the tissue is not changed, physicians have found that symptoms which disappear suddenly are likely to return, altho frequently in some disguise.

In order to effect a cure, patience is as essential as the right remedy. A physician who expects to cure a case of long standing in an unnaturally short time, often satisfies the patient for the first month or two, but a relapse is sure to come, when the newness of the doctor's personality has worn off. "A new doctor is always right," as the old saying goes, but only for the time being. Many physicians, who are scientifically well-fitted to cure chronic invalids, are unsuccessful because they change correct prescriptions before nature has time to remove the disease or regenerate the patient. The patient must not be allowed to suffer; indeed, he ought to be relieved at once, if possible, but he should be told that it necessarily takes months of hard up-hill work, with many relapses, for permanent health to be restored. By employing patience many operations could have been avoided; instead of that the disappointed face of an impatient doctor drives the fright-

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ened patient to the surgeon or into the hands of quacks.

At present the welfare of the future generation is rightly considered. Most reforms advocated to-day have been tried many times before without achieving the desired result, for the simple reason that a decided change for the better was looked for within five to ten years, altho the laws of environment and inheritance physiologically demand a much longer time to make a new generation. We can not draw reliable conclusions from what happens a short while after a reform is instituted, on account of many purely incidental and accidental things that may happen.

Second
Demand:
Self-improvement

The second demand of nature is that we follow the law of evolution. Every one of us is an inseparable part of the universe. The great law of the universe is evolution and every one of us possesses, in his sub-conscious self, the instinct of evolution, which must be satisfied by self-improvement before peace of mind or a sound body can be attained.

To improve one's self means to add something to one's bodily, mental, or moral betterment, regardless of what it is, even if it only creates an impression in ourselves that it helps either us, the family, or society in general.

Those wretchedly unhappy ones who, by standing still, clog the wheels of their own and the world's

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progress, feel better when, by advancing even a little, they appease their rebellious instinct of evolution. Without conscious, or, what is more commonly the case, unconscious, realization of one's progress, no health is possible until the fiftieth year, or inside that period of life when man was intended to grow and produce.

The whole day of a healthy child is filled with search for knowledge and efforts to improve its ability to do things. We adults know the value of writing, reading, geography, etc. The primitive instinct of a child often does not readily take to the civilizatory values of these studies, but strives for more natural self-improvement by greater bodily proficiency and a greater fund of general practical information. This primitive instinct of evolution has to be satisfied first before some of our most normal children become good pupils in our conventional schools.

The ambition to become as efficient as possible is part of this instinct, while the ambition to get ahead of every one else is the same instinct perverted. The one is constructive and leads to happiness, the other destructive and leads to unhappiness. It is proper to measure one's prowess with that of another, in order to get a standard of one's proficiency, while the endeavor to destroy a competitor is only justified when he represents a vicious principle.

Work done in making a living should not in the

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No Kind of least interfere with efforts to make ourselves daily a
Work Prevents little better and happier.
Self-improve-
ment

The dignity of work depends on the effect it has on ourselves and our fellow citizens. It must not be measured by the return it brings in money or by comparison with others who can do it better.

The ability to amass wealth is due, not to a highly developed intellect, or character, but to a peculiarly constituted personality which, by itself, has no more right to command admiration than a hare-lip or ability to wiggle one's ears. By testing the intelligence of rich men we find that many, tho not all, fall below the normal, a fact that has long been suspected on account of some of the peculiar qualities of their offspring. In applying the moral test, we find their deviation from the normal is almost as great, in some instances, as that of the born criminal, altho it is covered in the rich by an outward dignity which was acquired, in its misleading likeness to the real thing, by financial independence, educational advantages, and refined environments.

The public gradually is beginning to understand that a clerk who gives pleasure to his family and his customers is a greater power for good than his wealthy employer who may owe one-quarter of his standing to his ability to get for the least wages the greatest amount of work; a second quarter to his success in destroying honest competition; a third, to his cleverness in luring people to spend their money foolishly; and the last quarter to knowledge

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of how to make or do something better than others. But the idea for even the last quarter may have originated in some subordinate brain. Executive ability, which is rated high to-day as a kind of congenital gift, will be the common attribute of all persons reared according to the principles here set forth.

Another reason why people sometimes despair of ever amounting to anything is that their work is not only lowly, but could be done by others just as well or better. This is a wrong point of view. Everybody in this world is only self-important, with the possible exception of one life in a hundred million which may have become important to the world in general; altho most of us strut around with the delusion of our importance.

The greatest achievements in religion, literature, art, mechanics, and politics were wrought out gradually. They were always preceded by a period in which work of a similar kind, altho not as strikingly wonderful, was produced. They were never brought forth like lightning out of a blue sky. There is almost no exception to this rule. If the person who did a great thing had not done it, some other person would have done it—possibly in another way, but, finally, he would have achieved the same results. We, and the conditions surrounding us, grow in accordance with the imperative law of evolution. By doing our work as well as we can, we must be satisfied and not be unhappy because

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others were born different or into a better soil for growth.

For Those Who
Have Retired
From Active
Work

People who have retired from active life after their fiftieth year, are frequently not as happy as they merit to be. They often consider themselves useless because they no longer take part in the world's work. In reality, they are no more useless than a beautiful tree which does not bear fruit, or a flower which is a delight to the eye. Many old ladies and men are needed for the happiness of their families and friends. To satisfy fully this need has greater merit than to stand in competition with others in business or to manage a household.

Many men, after retiring from business, become deprest. They are unable to occupy their time, because their brains have acquired the habit of being busy only with thoughts connected with work. To guard against this, some hobby, not connected with regular business, should be cultivated in early life, with which to pass the time pleasantly in later years.

God asks us to praise Him in our prayers, altho He is absolutely certain of His righteousness. No wonder poor mortal man sometimes needs praise to steady him when he hesitates in doubt as to whether he is on the right road. Judicious praise should be given as a well-deserved tonic to the instinct of self-perfection, especially to people with little self-reliance. Flattery or injudicious praise misleads, as it gives a wrong estimate of one's abilities and often an unwholsome conceit. In the previous chap-

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ter I mentioned why punctilious, fault-finding criticism is likely to stunt the normal growth of a sensitive person's good qualities.

Everything man does exists first in his thoughts. Good and bad thoughts precede good and bad actions. It is an error of so-called liberal-minded people to believe that bad literature, bad plays, and bad pictures do not demoralize us. Every impression leaves a trace in the brain. An ugly thing seen or heard becomes a part of the personality and often a possession or obsession that may disturb life for years and grow into a bad action. In some cities of the old world guides show to unsuspecting visitors the life of immoral people at night. It is known to these guides and to the dive-keepers that many sight-seers, after viewing the ugly sights go quietly home, only to come back alone, sooner or later, and try the same experiences for themselves. Crimes of delinquent children can often be traced to bad literature or to stories about crimes read in the newspapers.

Bad habits are contagious in the formative period of life; for many people all through life. Companionship with people of high ideals elevates the character and stimulates one to good actions, while association with undesirable people may, in time, hurt even a good character. Good reading is always improving. Fortunately, we can turn to books when we are tired of people who are less worthy of acquaintance.

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Third Demand
Made by the
Sex-instinct

Nature's third demand is for a normal sex-life, in regard to which I refer to the special chapter on the subject. Altho sex-instinct is charged to man's animal side, it has many spiritual manifestations. Women are lonely and sad until they have some one to care for; men until they have somebody to protect and live for. There are many women who become half invalids for thirty years or more, because they never find any one who wants their affection. They stand it poorly if they never feel the sympathetic touch of a loving hand and cry themselves to sleep, after hiding their starved souls during the day under a mask of pride or indifference.

Normal people have the greatest difficulty in remaining normal without having a normal life. Everybody has his own sexual individuality which may exact little, or, if not satisfied, it may, during the prime of life, disturb the peace of mind and equilibrium. On one side is self-control, on the other, a self-to-be-controlled and, if to the latter is given its due, the former will be likely to keep everything balanced.

A sacred duty toward every child is an education for marriage. A great loneliness has deadened the best in the personality of millions who have sacrificed themselves dutifully to a mistake they made when, in ignorance, they bound themselves to an unfitting wife or husband; they remain together but live each as the other's prisoner and victim.

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Nature's fourth demand, which can easily be satisfied, has to be traced back to the origin of man as a gregarious animal. Man owes his existence to cooperation with his fellow beings in the battle for life, first, against animals, later against members of his own race; and he who does not instinctively participate in one way or another in the common weal either feels uncomfortable or degenerates from the normal.

Fourth
Demand:
Social Instinct

The need of friendly companionship is part of the same instinct. Time is well spent in an effort to secure congenial friends and associates. Without them, the soul naturally becomes lonely and dissatisfied. As wealth and power are the principal goals for human ambition, many consider the time not spent in their pursuit to be lost. They do not realize that they can never be permanently contented if they neglect to give, systematically, a part of their energy to the acquisition of what their mind instinctively demands in other directions, self-improvement, companionship, friends, etc. But these we have no right to expect without effort on our part. The biographies of most great men show the part their friends played in their lives and the efforts they made to keep them.

The gregarious instinct of nervous people is especially strong, tho, unfortunately, often perverted, as a neuropath, with his characteristic lack of sense of proportion, expects friends to be affected by his troubles and joys exactly as he himself is, which is

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and, as this would eventually incapacitate several persons in place of one. Finding sympathy not sufficient for the fulfilment of his unjustified expectation, the neuropath goes to the other extreme and remains alone; he stands aside and practically remains lonely until he has corrected his misconceptions. In this class we find the people who, in youth, were deprived of self-appreciation and self-reliance through fault-finding teachers, who first took away their confidence in themselves and then in others, a mental state making it difficult for them to satisfy their naturally strong desire for harmonious work with others in life and society.

The Physical
Demands of
Man

Nervous people often believe they can, with impunity, eat anything that the stomach can digest. When we eat something that disagrees with the stomach, the effect is felt in a few hours; if the food disagrees with the liver we feel it in a day or two; while certain foodstuffs, which affect the nerves and the system in general, produce bad effects after months and sometimes years (as in the case of gout). An occasional indiscretion seldom has a bad effect. The layman is often tempted to overlook the cause when a long interval intervenes before the effect is felt, or when the cause is made up of a number of little mistakes which, tho not serious menaces to health when committed singly, in the aggregate are bad. I do not recommend a vegetarian diet as a general principle, but many nervous people keep

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their balance better when they eat little meat. Nature often does not succeed in regenerating a patient until he gives due consideration to the skin and muscles, regarding which subject see Chapters VIII and IX.

People who are normal by birth instinctively follow nature's demands; it is perfectly natural for them to be patient, to make progress, to marry early a congenial, normal person, to take exercise, to have friends, and to eat simple food. On the other hand, we invariably find, in the chronically sick, that they have neglected certain of nature's needs, either on account of ignorance, lack of will-power, or force of circumstances. Further, we find that they gain health only by giving in to nature's demands, or by waiting until the autumn of life, when their earthly existence, and with it the demands of nature, ebb gradually away.

Any one who is not well and able, by himself, to follow nature's demands, must not be ashamed to ask another person for help. This is not asking too much of anybody who professes to have our interests at heart, whether father, wife, husband, sweetheart, or friend. Willingness to help is the test of a person's worth. Exercises and air-baths do not take more than a few minutes daily; the diet we recommend does not involve any deprivation, and a really

When One Can
Not Help
Oneself

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wholesome manner of living is no sacrifice, but increases the joys of life for a sensible person.

Those who can not help themselves and have nobody to help them, should go to a good health resort, where temptations are kept away from them and every one is made to follow rules similar to those here advocated. After from four to six weeks the habit of a more nearly normal life will be acquired and thereafter easily continued, altho it may be a good plan to go later to another environment, and associate with people who are struggling for the same end on the same road.

How Will-
power is
Grown

Will-power is a natural attribute of a sound mind and needs no special training when good rules of health are followed. It must be emphasized that it is developed, not by suppressing, but by doing things. We must educate ourselves in the habit of doing and finishing things—no matter what they are—do them, do them; finish them, finish them. Make it clear what you wish to do, and the reason why; decide about the best way to do it and then go ahead, whether right or wrong. For a nervous person a wrong decision is generally better than no decision. Something may be rightly said against almost everything. Hesitancy and delay create the exhausting habit of indecision, which uses up mental and bodily energy that is lost for the work itself.

Will-power is steadied further by always keeping the aim in view and accepting obstacles on the way

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as necessary incidents. I have given anatomical reasons why the body can do its best possible work only with full concentration of mind on one aim. Everything disagreeable that has to be done to reach the main object for which we are striving should be considered merely as a side issue, with the main purpose never out of sight. This leads to enthusiasm which carries the optimist to his goal, as it makes him insensible to the hurts and dangers which break a fearful soldier down on the way to victory.

The efficiency of many intelligent people is paralyzed by too much thinking. All nervous people think too much. Only by doing and finishing can they learn to act, and so become well.

The neuropath who is unable to relieve his mind of worry and anger can often do so by writing down in a few words the reason and possible effects of his trouble. By subtracting his hurt pride, he will always find that cause and result do not amount to as much as he first thought or not more than what he has needlessly worried about many times before and, by considering the probabilities, he will see that he has no reason to be despondent. Life is not always a winning game and every one should learn how to stand defeat. Those who do not learn, disable themselves by allowing worry about the past and future to spoil sleep and digestion and working ability; while, for the man who learns how to accept

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defeat, a failure in the past is an experience which becomes an asset in favor of success in the future.

Every one must create for himself the philosophy he needs, but in this effort even great men do not always succeed. There can not be the least doubt but that firm faith in one's religion gives the feeling of security for one of insecurity, the right way out of exaggerated perplexities, a stronger heart and a healthier body, a fact denied only by prejudice or ignorance.

THE THREE GREAT NERVOUS FEARS

People of thoroughly sound minds do not need to read the remainder of this chapter. It is written for slaves of prejudice and obsessions, and deals with the three predominant nervous fears: first, fear of other people's opinions; second, fear of insanity, sickness, and death; and third, fear of poverty.

Exaggerated consideration for other people's
First: Fear of opinions makes nervous people into living lies. Self-
Other People's expression is the strong desire of any honest person
Opinion and, if suppressed, suffocates the natural growth of
good qualities and possibilities.

Great men often appear selfish because they must force themselves, without consideration of the few, into the place where they can do good to the many. Every one must find out for himself what he is and what he can do, and steer directly to the place where

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he belongs. By always paying attention to others he may succeed in crippling, but never in improving, himself. God intended to have a division of labor and, necessarily, a difference of views and character among men. It is unphysiological to allow public opinion to shape every one after the same pattern.

Independence of mind must be sacrificed when the leadership of one is necessary to save the country, a principle, or life. To those who love us, we should explain why we acted in a certain way, and, if they are unable to understand, they should be asked to have confidence in us, as every one must live according to his own individuality. Individuality is to the soul what life is to the body. To destroy the individuality is, for some people, worse in its consequences than to kill the body with one stroke. For this reason the world can not be allowed to be the judge of any one's thoughts and actions, tho this is no reason why every one should not be treated with kindness.

Evil people hate good ones; the jealous belittle the successful; one man's pleasure is another's displeasure; the rich materialist looks down on the poor idealist, and the hypocrite suspects even the best people of selfish motives. God alone is perfect. Everything man achieves and receives must be imperfect. Intelligent people are more likely to feel nervous about their limitations than the stupid ones who consider themselves right, since they do not realize their failings. Those who are too

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short-sighted to see their own shortcomings can not be expected to size up others correctly. A variety of bright faces and decent clothes covers the most massive stupidity; many inmates of insane asylums look like prophets of old with a spark of genius in their eyes. Even intelligent people have a thorough knowledge of only a few things; they can not be relied upon as judges of everything.

How can one possibly place stress on one person's view of another when the best have a diversity of opinion on subjects less difficult to understand but more vital to the world? Millions in 1912 who conscientiously voted for Roosevelt did not understand how other millions could, in honesty, vote the regular Republican ticket. Millions of Protestants wonder how Catholics can rely on saints, and Catholics, how Protestants can expect to go to heaven without the intercession of a saint. Both feel sorry for three hundred millions of Buddhists and Mohammedans, who see in Christianity a religion of cruel selfishness. All, in common, despise the Jew, who is confident that his despised people is the elect of God. Our merchant-prince looks like a robber-king to the working-man who can not understand why he should suffocate in workshops and his children starve while the other lives in sunshine and luxury. We make an outcast of a girl who sells her body on the installment plan and hold blameless another who sells herself for one big sum to an unbeloved husband, with the sanction of the church.

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A man's opinion may be interesting and characteristic for himself, but has no weight in deciding right and wrong in general; in fact, a person becomes a sad joke when he tries to make his view the standard for others. Compare the biggest skyscrapers with the Rocky Mountains, the speed of a fast train with that of the stars, the best aeroplane with a little bird, the insecurity of man's life with the indestructibility of matter, the incessant effort of science to make a living cell with the world where everything is alive, or most people's imagined importance with their true size, and the greatness of man shrinks down to the self-important play of ignorant children. When one acquires this right sense of proportion he will never remain a slave to public opinion.

Progress marches in the form of a wedge. On the sharp point stand only the very few who see ahead. The greater mass gradually follow and possibly in one, ten, or a hundred years reach the spot where those on the point are to-day. This makes it clear why the popular man is not necessarily the great one, while the great man who is at the point of the wedge can not expect to be popular. It is the same with books. Every great man, from Christ down to Lincoln, had to go through this experience and wait until his ideas conquered. Not one of them could have done anything for the world if he had allowed public opinion to form his own.

It would show a low estimate of the reader to add anything here about worrying and grieving over

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gossip about clothes, children, and society. There exists no perfect person in this world. The fact that we do not see any bad qualities in others is no indication that they do not exist. Sensitive people unjustly reproach themselves with faults, lack of gratitude, etc., which often are nothing more than the normal peculiarity of mortal man. If they knew other people better, they might become conceited by realizing their own goodness. The world has a right to expect every one to have one good quality and to be, in the main, free from such as do harm. Some are more accomplished in cooking, entertaining, and making a home happy; others in working in public and politics; some exist to be a pleasure to the eye, others to carry the burden. No one person can expect to be a fine musician as well as a great business man, an art expert as well as a winner of battles.

In private life those who desire to be comfortable must fit themselves into the circle where they belong. With little effort, every one can find a place where he is wanted. The endeavor to enter a certain set of society, fortified by family traditions, wealth, religion, prejudice, education, mutual admiration, or ignorance, is wrong. It disturbs the community of interests. Anybody wishing to enter a better class than his own can use his ambition more nobly by elevating the one into which he naturally fits. Every pioneer has to be an outsider.

Nervous people who are constitutionally displeased

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with their own persons should, when judging themselves, imagine themselves in the place of God, deciding about entrance to heaven, where great leaders in society and business may be rated lower than a faithful servant; where most achievements people work themselves sick for will count for nothing, and where a simple, honest effort to do right will count for much with the wisest and kindest Judge.

The second great fear of the neuropath is of sickness, insanity, and death.

People who, from childhood, follow the suggestions given in this book will finally fall asleep happily, never to awake again, after a beautiful old age. They are not protected against accidents, but against the unnatural horror of becoming, at the end of their life, a burden to others, because of a painful and lingering disease.

Second: Fear
of Sickness,
Insanity,
Death

Habitual fear of accidents is just as sensible as would be hesitancy to bite into a piece of bread on account of a possible hidden piece of gravel. The gravel, of course, is a possibility, but not a probability. There is the same degree of danger that oneself, or a dear one, may be hurt. If such slight probabilities were worth worrying about, no enterprise would ever be undertaken. There is some uncertainty connected with everything that man does.

An acute disease ends either in recovery, invalidity, or death. The chronic invalid can enjoy this

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world, provided that at the time when he is free of pain he stops worrying and fretting about the past and future. Worrying, with its consequent insomnia, poor digestion, and nervous exhaustion, undermines the constitution and endangers the chance of getting well. Mental diseases excepted, all others do not incapacitate one for pleasure and work a tenth as much as does the accompanying worry and grief. Many great works in art and literature were produced by sick men; many lives have been made pure and noble by sufferings which made others disagreeable burdens to themselves and the world.

The history of thoroughly religious people, of martyrs and men of great purpose, teaches us that a brain occupied with one thought does not admit the realization of any other sensation, such as pain. For weaker mortals nature has provided opiates which remove pain and give to the mind real peace and happiness. There is no earthly reason why excruciating pain should not be relieved; if no other way is possible, then by morphine, which, in itself, would not produce fatal results in less than from ten to fifteen years. No one who can be relieved in any other way should take it. The morphinist can not be safely entrusted with serious responsibilities. He does not feel what is going on in his body, neither does he get the right impression of what is happening in the world, and generally he does not care. He loses the charm of his distinctive personality and is no longer Mr. Smith or Mr. Brown, but simply a morphinist.

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However, when all other hope is gone, we may rely upon this drug to relieve all pain and suffering.

The person who fears to become insane seldom does so. An insane person is one who has wrong ideas and ideals and believes that they are right. A nervous person may have emotions and thoughts that are wrong, but he knows they are wrong. This is the cause of his worry, tho it should console him, as the fact that he realizes the wrong is proof that he is sane. While insanity is a terribly sad condition, insane people do not feel as unhappy as they seem. The mind is either sluggish and not normally receptive, or so excited that one thought rapidly succeeds another. Often the insane are really happy, especially in cases of paresis. Restlessness, tears, moans, and many other peculiar actions of the insane, do not indicate sharply-felt emotions, as they do in a sound-minded person.

Death is the fate of every one and should be accepted in a dignified manner. Death itself is painless. Those who were once practically dead, but were resuscitated after hours of artificial respiration, always report what an easy and simple matter it is to die. The facial expression of most dead persons shows a freedom from past pain and worry. There exists a book of over one thousand pages about death, collected mainly from biographies. All the facts corroborate the opinion that the brain of every one

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before death enters into a drowsy state of sweet dreams, when the great parting is not realized.

It is natural that after living many years on this earth we are as loath to leave it as to go from an old homestead, even tho we know that we go to spend a most enjoyable time somewhere else, but with the certainty that we shall never return. However, most of our best men welcomed death as the great liberator who frees the soul from the baseness of our animal-like body, putting it beyond the ills and narrowness of this world.

The deceased one is on the safe side; death is either a long, quiet sleep or the passing to a better world there to be reunited with many dear friends and relatives. God can not punish wickedness and crime worse than the guilty generally punish themselves here; and He forgives as He best knows the limitations put on our best intentions by having us dominated by orders inherited from ancestors, which make our actions no more dependent on our will than the shape of our nose or ears.

The loss of a beloved one is immensely painful. With them, life was beautiful and great; without them, summer and winter, success and failure, everything has lost its meaning. The nervous system can not remain in such a state of painful high-tension for any length of time. The brain-centers, where grief is seated, tire out and are unable to sustain the same sensation long. Time does not give the past happiness back, but after fifteen months at the longest, grief has

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lost its power to interfere with the normal action of a brain, provided acute grief is not wilfully stimulated by intentional thinking of the past. The most painful sorrow may be relieved sooner by putting the brain to concentrated work, into strenuous action, when singleness of purpose causes everything else in the world temporarily to disappear. It is unfair to the dead to make them the cause of long unhappiness; unjust to sacrifice to a memory the comfort of the living; against the laws of nature to stop one's own growth by anchoring to the dead; and a sign of a lack of resources to fail to cover a vacancy, altho it may remain forever impossible to fill it.

The third fear is poverty. Poverty does not necessarily cause unhappiness, nor wealth happiness, but Third: Fear of Poverty the worry about either makes life miserable.

Every one following our suggestions can save enough during the time when he enjoys work to keep him carefree until the end of life. It costs very little to provide the body with what it really needs to keep in the best of health. Outdoor life, literature, and museums furnish for almost nothing most satisfactory recreation.

Luxuries, on account of which the poor envy the rich, seem great pleasures to those who do not have them, while those who possess them must often use considerable imagination and pride to find them unalloyed blessings. True, we are the children of our age and can not free ourselves from the fascination of general-

THE HEART AND BLOOD-VESSELS

ly cherished possessions, but, in reality, the loveliness of a much desired, costly gown is in nine out of ten cases only imaginary; when the eye has become accustomed to new styles, its beauty is gone. Large, expensive residences add little to the average housewife's comfort. Dramatic and musical productions, in four out of five performances, are of such a kind that we would leave the house if we had them at home. Without costly trips intelligent people know, understand, and enjoy the entire world better than most globe-trotters, who often are not acquainted with the beauties and opportunities of their immediate neighborhood at home. Time spent with nature, a congenial friend, or the works of a good author, sculptor, or writer, or out of doors engaged in sports, gives a feeling of satisfaction, as it adds something to our bodily and mental welfare. We do not have the feeling of ill-spent time, as is often the case when our average fellow citizen tries to entertain us by displaying costly gowns, setting expensive meals, and asking us to listen to conversation.

As the poor man is not deprived of much real pleasure and, on the other hand, is protected against want in our modern state of civilization, poverty becomes depressing only when we consider it a disgrace, which we have no right to do.

The sober-looking old man and woman with shiny, clean clothes and tightly-combed hair and the poor child, are results of our present state of evolution, just as a lingering disease is the necessary finish

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of many people's lives. Poverty results from economic conditions, and an ugly death from a manner of living, both of which we believe to be right, altho they are wrong. It does not need much figuring to show that, from an income of a thousand dollars a year, few can save enough to keep themselves financially protected when they become disabled or, as is oftener the case, when they are not able to obtain employment on account of age.

The moment people understand that poverty is no disgrace, worry about it will cease. The comparison is interesting between the cheerful expression we so often see on faces of poor old people in a nice country retreat and the strained, restless countenances of the old rich in some modern, luxurious hostelry.

Those who have money, and always worry about the possibility of losing it are not liable to lose it. Generally they are over-careful; the fear is only a nervous one. When misfortune really occurs, they are almost always able to cope with it, provided initiative has not become paralyzed by imagined disgrace and the satisfaction felt by their enemies. Education in habits of simplicity and love of nature provide an armor through which destiny can not penetrate.

Those who are unable to make a living all through life may be divided into two classes. The first comprises degenerates, tramps, drunkards, and imbeciles, who should be treated as mentally defective patients. The second is the genius who, working under inspiration, becomes the instrument of expression for a divine

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thought and, therefore, is not always able to produce salable goods. It would be best to give to these a monthly governmental salary; when troubled or starved, they often cease to express their true inspiration and prostitute their genius, in order to give to the public what it will buy.

The fairest thing in the United States is the chance given to each child of acquiring the finest education without cost. In other countries the child of the poor, beginning with its ninth year, is led through educational channels which confine it to a lowly social and economic position. In this country education does not depend so much on financial circumstances as on the child's qualities of intellect and character. Practically every child has the same chance. The poor boy's prayer: "lead us not into temptation" is, however, more easily answered than that of the rich heir.

There is only one kind of poverty to be feared. This is the poverty of a large part of the population. Wherever we meet many people together who are paid low wages, we find an abnormal number of sick ones, breeding places for typhoid, cholera, and other epidemics, parents of degenerates, criminals, and prostitutes—all of which constitute a danger for the rich and poor alike. This kind of poverty can be hidden by charity and removed by education, a fairer division of the returns of labor, and restriction of the right to dismiss employees because younger and cheaper help can be secured.

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We must add one-third to the average living-wage to make it a true living-wage for the whole life and not a wage for each day of work only. Up to his fifty-fifth year the average diligent man produces, with well-directed work, what ought to support him until his seventieth year, but, in our ignorance, we misappropriate the big surplus that exists over and above the amount of wages paid for each working day, and give it to promoters, bankers, and non-working officers and stockholders. The money which the worker without question has made, and on which he should live after age has incapacitated him for work, flows into the wrong pockets and, necessarily, leaves him penniless in old age.

Old age pensions are well meant, but it would be better, in the interest of preserving the present form of government, for each person to be made able to get and save enough, individually, for his needs. People who have saved several thousand dollars are interested in a stable, safely-progressive government, which will safeguard their money by law and order. Old age pensions educate for a socialistic form of government and rapidly increase the number of socialists. A man who receives a pension of \$800 a year wishes for a form of government which will give him \$1,000. He is a ward of the state, and knows that if he and his kind gain control of the government they will receive more, as it is practically impossible for a revolution to destroy the resources of a country which can easily give shelter, plenty of food, and everything

THE HEART AND BLOOD-VESSELS

needed if properly distributed, regardless of how small an amount of cash each receives.

People generally continue to save after they have once made a start, which, however, with present wages, they are not always able to do. The teacher should tell children in school that a part of every one's income should be saved to pay for living expenses after the fifty-fifth year. To-day the poor man knows least how to economize or to get the best returns for his money. He has not the least idea of the quality goods should possess or what legal rights he has for protection. Many work steadily, earn good pay, live a modest life, and never save, as they spend their money foolishly. Half an hour instruction each week in school about the comparative buying power of money would have changed the economic condition of many. A child will remember all his life when it was shown in school a picture representing a twenty dollar gold-piece and what can be bought with it, for instance: an Easter hat; or room and board for four weeks; or a silver toilet set; or two weeks' vacation in the country; or a dozen photographs; or fuel and underwear for the winter; or a bracelet set with a stone; or a decent life if out of work for two weeks.

I have said already that the average person who devotes his brain and muscle to farming is, around his fortieth year, after twenty years of work, better off, so far as a care-free future is concerned, than the average city-dweller.

RECAPITULATION

1. The first part of the document is a list of names and titles, including "The Hon. Mr. Justice G. D. C. O'Connell" and "The Hon. Mr. Justice G. D. C. O'Connell".

RECAPITULATION

Many details may give to a simple matter the appearance of being complicated. I do not wish to leave the reader an impression that correct management of the body is difficult. The sum and substance is: that nature makes every standard organ in our body able to work from ninety to one hundred years; demands that all shall be exercised and rested at regular intervals, and the body wants as fuel daily food consisting of from eight to twelve ounces of carbohydrates, from one-half to two ounces of fat, and from two to three ounces of proteids.

Organs which are used too much, or not enough, deteriorate and become unfit for work before the sixtieth year is reached. Wrong kinds of food, or too much, forces the body to work under abnormal conditions, which is the scientific definition of sickness.

Most vital organs work automatically and have, in addition, regulation for speed and intensity from the brain, where nervousness or any wrong mental attitude disturbs the regulating mechanism. The brain's condition corresponds to man's health, ideals, and actions, which latter are the result of the kind of life we choose to lead, and partially predestined by inheritance, education, and environment. The instinct for evolution (self-improvement) and for society

THE HEART AND BLOOD-VESSELS

(social instinct) must be satisfied, in order to keep the mind sound. An unsatisfied sexual instinct may become a very disturbing factor, but can, in most people, be overcome by occupying the mind and body intensely.

Nature uses the heart, the blood-vessels, and the blood to distribute to each organ the food required to produce its share in the body's economy and this economy becomes impaired when the heart (the driving-power), the blood-vessels (the elastic piping), or the circulatory medium (the blood), are out of order. The degree of the body's impairment is best estimated by working ability, and not by structural change. When sick, the manner of life must be systematically adjusted to the state of health, to insure the greatest possible degree of efficiency and happiness.

XII

CARE AND CURE

HOW TO ADJUST LIFE SUCCESSFULLY TO A DEFECTIVE HEART AND HARDENED BLOOD-VESSELS

1. Habits and environments.
 - (a) Work and rest.
 - (b) Friends and family.
 - (c) Food, liquor, tobacco, coffee, etc.
 - (d) Bowels.
 - (e) Sleep.
 - (f) Exercise, vacation, climate, dress, and home.
 - (g) The choice of an occupation.
 - (h) Periodical medical examination.
2. Treatment for a sick heart as long as the patient is able to walk and talk without discomfort for at least five minutes:
 - (a) Nauheim baths.
 - (b) Electric (high frequency and other) currents.
 - (c) Massage, etc.
3. Medicines which may help the heart and blood-vessels at any stage of sickness.
 - (a) Digitalis, Strophantus, Spartein, etc.
 - (b) Caffein, Amylnitrit, Nitroglycerin, Morphin, etc.
 - (c) Adrenalin, etc.
4. Benefits to be derived from:
 - (a) Stimulants (strychnin, camphor, etc.)
 - (b) Sedatives (bromids).
 - (c) Iodin.
 - (d) Pressure on nerves and blood-vessels.
5. High blood-pressure and arteriosclerosis.
6. Aneurism, varicose veins, hemorrhoids.
7. Nervous blood-vessels (angio-neurosis).
8. The treatment of the nervous heart.

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XII

CARE AND CURE

HOW TO ADJUST LIFE SUCCESSFULLY TO A DEFECTIVE HEART AND HARDENED BLOOD-VESSELS

A person with a defective heart must remain, in Habits and
Environments everything he does, well within the limit of his strength. Tho able to walk fifteen blocks, he should not walk more than twelve; tho able to work three hours, he should work only two, and rest, if possible, every hour for a few minutes, to avoid fatigue. When able to get along with seven hours' rest and sleep, he should rest and sleep at least nine hours. His recuperative power is lowered and it takes, when overtired, days and weeks to regain strength which a healthy person recovers in one night. He endangers his future whenever he goes beyond his strength even a little, or only to the point where he begins to feel tired. He may do as much as an average healthy person, but he must divide the work into periods of short duration. What may happen in a year or two must be considered, rather than whether, for the present, the heart can stand an effort. The best protection for the future is a proper adjustment of effort at all times to one's strength.

THE HEART AND BLOOD-VESSELS

For a person with a sick heart unable to walk, or do anything that requires effort, without becoming short of breath, the only safe course is to remain quiet, or stay in bed, until these things can be done without effort and discomfort.

One's family, associates, and friends should remember that excitement, discomfort, and worry are injurious to a defective heart, and they should make it a principle never to mention any trouble except for reasons of vital importance. In all demands made on the patient, they should consider his weak heart and not his ambition or his good will. They will make the patient uneasy by asking him continually how he feels, or by watching him with a sorrowful expression, which, incidentally, is liable to cause a congestion of blood to his most vulnerable part, to which they continually call his attention. Sympathy is best shown to this class of patients by actions rather than words.

The patient must never use his sickness as an excuse for being lazy, impatient or exacting; he must remember that sympathy and kindness are not due him, if he attempts to prevent those who love him best from taking part in any enjoyment because he can not participate in it. He should be glad to have his friends take relaxation, pleasure, and exercise; otherwise they can not increase his own vitality by means of their good spirits and animal magnetism. Services dutifully rendered but in a spirit of martyrdom, are disagreeable.

THEIR CARE AND CURE

Meals should be taken according to the general plan laid out in Chapter VI. While it is important for all persons to masticate and salivate the food thoroughly, the heart-patient, especially, should pay careful attention to these points. He must allow at least forty minutes for breakfast, an hour for dinner, and three-quarters of an hour for lunch. The heart's action is easily interfered with by neighboring organs. Every organ when working needs more blood than when idle. These are the reasons why a patient with a weak heart often feels better when dividing the food he takes in twenty-four hours into five, instead of three, meals. For instance, instead of taking meals at eight, one, and half-past six o'clock, he should distribute the same quantity of food over five meals, taken at eight, ten, twelve, half-past three, and seven o'clock.

Three pints of liquid of any kind is the most that he should take in twenty-four hours. The habit of getting along with little salt should be cultivated; if a dropsical condition exists, salt should be left entirely out of the diet. Some heart-patients need a little refreshment just previous to retiring, while others are better from not taking anything later than three hours before sleeping-time, and then only a light supper.

When the heart is acutely out of order, the patient is often greatly helped by taking, for four or six days, no other food except four cups of milk daily (with a teaspoon), one at seven, one at eleven, one at three, and one at seven o'clock. If necessary, a biscuit and a few

THE HEART AND BLOOD-VESSELS

crackers may be added. This diet should be taken only under a physician's supervision. It is merely mentioned in order to assure the layman that it will not injure the patient because of the small amount, the reason for which is given on page 118.

The gas, of which many patients complain, is often caused by imperfect digestion resulting from bad circulation or a swollen liver, and not by the food, which is well digested after the liver and circulation have become normal.

Coffee, tea, alcohol, etc., should be avoided, or reduced to the minimum amount which the patient needs for his comfort, because of life-long habits in using them. A little perchlorid of iron cotton should be put into the cigar-holder; it retains the nicotine and enables the smoker to enjoy a good cigar with greater impunity.

"Qui bene purgat, bene curat," is an old medical law, and means that a physician who makes the bowels act properly, just enough and not too much, is a good doctor. "Filthy bowels worry the heart." The absorbed impurities lower the ability of the red corpuscles to take up oxygen and depress the general vitality. Intestines and stomach, when bloated with gas, press upward and form an impediment to the free action of the heart and necessarily fatigue it by their resistance. Too many bowel movements cause weakness and make it impossible to normally regain strength.

The importance of sleep can not be over-rated.

THEIR CARE AND CURE

When the suggestions given in Chapter VIII are followed in so far as is consistent with a sick heart, and yet do no good, the patient must not be afraid to take medicine which his doctor prescribes. There will be no danger of becoming a "dope fiend," on account of using medicine that is prescribed by a reputable physician during a sickness. Five to eight hours of sleep produced by five to ten grains of veronal, or by three teaspoonfuls of varelian, or two to three bromural tablets, or any other inoffensive remedy, with the addition of one-tenth to one-sixth grain of morphin, if there is shortness of breath, does more good than the remedies themselves ever can do harm. Sleep rests the heart and restores its vitality, both of which are needed to make nature's effort of regeneration possible. Angina pectoris, which is a symptom of heart exhaustion, as we have explained, often becomes wonderfully helped by rest alone without any medication.

Concerning the exercise to be taken by a patient with a defective heart, so long as it works well, we refer to Chapter VIII. When the heart is exhausted, the patient must rest completely. Exercises must be begun only when he is again able to sleep in a three-quarter horizontal position, to talk for five minutes and to walk for eight minutes, without becoming short of breath. Then the exercises must be taken regularly without fail, as they train the heart for the demands of a normal life (see Chapter VIII. Hy-

THE HEART AND BLOOD-VESSELS

Form of Exercise. Regular daily walks in a quiet neighborhood are not so highly recommended.

The patient must be able to go to all the rooms in which he lives without getting short of breath. His sleeping and working-quarters should be chosen accordingly. A home in the country provides better air and quiet and the home should not be too far from one's business place, or the car. A suburbanite should not hurry to catch trains, nor carry heavy satchels. The temperature in the rooms ought to be kept as low as consistent with comfort, and the air in an artificially heated room should be kept sufficiently humid. For vacation, a comfortable, quiet family hotel should be selected, in preference to more strenuous places where society makes a show.

In regard to climate, we refer to Chapter VII. Altitudes of over 2,000 feet involve a risk for people with weak hearts who are not used to them. When passing through such places on a journey it is best not only to keep quiet but to lie down. High winds, heat, and humidity are not well borne by people with a defective heart who, for this reason, do not feel well on a coast unprotected against strong, cold, or disagreeably warm and moist air-currents. Much electricity in the air makes a person, especially one with a nervous heart, uncomfortable. Places exist where lightning-storms are practically unknown while, at other places, they occur two to three times a week.

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during the summer. Exposure of the body to an extremely low temperature is bad for a weak heart; during very hot weather patients must avoid all unnecessary effort.

Plenty of good air increases the general vitality, as well as that of the heart, makes it easier for the circulation to procure the necessary oxygen, and lessens the danger of infection of the often sluggish bloodstream with pneumonia or tuberculosis bacteria. The air should always be pure enough to allow breathing exercises two or three times each hour.

An anatomically defective, yet well-compensated, heart permits any occupation to be followed which does not at any time make extreme bodily or mental effort necessary. A physician, for example, may become an eye, ear, or heart specialist, but confinement cases and the exhausting practise of a general practitioner in the country would be harmful. For lawyers, office and preparatory work is safe, while to keep talking in court from three to six hours in succession is not advisable. Talking makes almost the same demands on the heart as muscular effort with the legs and arms. For bankers and brokers speculation, or other business that includes much risk, is injurious. I refer once more to the first lines in this chapter, about the necessity of always remaining within the limit of one's strength. As soon as a patient feels a decided shortness of breath, when doing things which formerly he could attend

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to without the least effort, he should rest and give up temporarily all consideration of gaining wealth and power. The family should encourage the patient to sacrifice money in preference to his life. Just the opposite is generally done from sheer ignorance.

The dress of the patient should be absolutely comfortable; clothes that are too warm have the same bad effect as weather that is too hot, and are weakening. Too heavy overcoats or wraps tire the heart and are sometimes the cause of spells of angina. Tight shoes, collars, or corsets compress the blood-vessels and force the heart to pump harder to make the blood move. Blood that stagnates can do all sorts of mischief. One needs only to press with the finger a vein on the back of the hand to realize how little pressure is needed to close a blood-vessel. The discomfort felt at first when the feet, head, or waist are too tightly compressed, soon wears off in those places, but the heart and nervous system remain disturbed and become exhausted. For those who can stand it, porous underwear of silk or woolen material is a good protection against colds.

Concerts, plays, and other entertainments should be visited, provided they really interest and do not tire one. When the entertainment is not too exciting, the heart is not troubled by worry, keeps up its automatic beating and quiets down as in sleep. Seats at the end of a row, or in a box, relieve one from the

THEIR CARE AND CURE

necessity of sitting in an uncomfortable position and give a feeling of security in knowledge that one can leave during the performance, if necessary, without disturbing any one.

A competent physician should be consulted once or twice a year, just as one goes to a dentist to have his teeth examined. Generally, no treatment will be necessary, or the regulation of a few details in the daily regime will serve as a preventative; but should there be signs of reduced reserve strength, work and exercise can be reduced and the strength restored to the heart before it is too late. Sometimes the patient is helped by rest, more out-of-door life, diet, or a tonic, such as iron, phosphates, arsenites, etc., which build up the general health, a factor, unfortunately, often neglected, as in our specialistic era, physicians are inclined to treat the heart independent of the rest of the body.

Treatments and medicines having a direct influence on the heart and blood-vessels are:

1. The carbonic acid or Nauheim baths (see page 207). They should only be taken when the patient is able to sleep comfortably in a three-quarter horizontal position, to walk one hundred steps, or, in other words, when the heart has some reserve strength left. They should be forbidden to anybody whose blood-vessels are very much hardened. The baths may be taken in institutions which possess special apparatus for the

Nauheim Baths
Electricity
Massage

THE HEART AND BLOOD-VESSELS

production of artificial carbonic acid water; in health resorts like Nauheim, where there are warm carbonic acid springs; in other places where the same kind of water comes out of the ground cold and is warmed to the right temperature; or at home where they may be prepared by chemicals which, under the name of "Nauheim baths," may be purchased at any drug-store. A physician should always supervise their use. The patient is the best judge of the effect; if they tire him they do harm; if he feels better afterward, they do good.

2. For reference to exercises advised for an exhausted heart, see page 171. For systematically graded walks, see page 169.

3. Most striking results may be obtained by the use of electricity, for which the patient is ready when in the condition demanded for Nauheim baths. Patients with arteriosclerosis and a blood pressure above 180 are benefited by electricity, while carbonic and baths may do them harm. The application of electricity is most effective in the form of so-called high frequency currents, which impregnate the patient with electricity. He has not the least sensation of, and is not in physical touch with, the electric current. The body is brought within the magnetic field, into electrified air-waves spreading from wires. Altho the electricity is not felt, there is enough in the body to light an electric bulb when one is taken in the hand. These high frequency currents increase the vitality of every muscle, especially the heart, and

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decrease a blood-pressure that is too high. As hundreds of thousands of electric waves, like very fine vibrations, reach the body every minute, the blood-vessels receive a shaking up, which is thought to restore elasticity to their hardened walls. Galvanic faradic water, and four-cell electric baths achieve good results, but not such striking ones as high frequency currents.

The patient should never receive any shock or unpleasant sensation; he should feel certain that he has no reason to be afraid, as a disquieted mind destroys the possible good effect of electricity.

4. Vibration and massage are of service when given by experts under the careful supervision of a competent physician. Both are dangerous if given so severely that they tire the patient, who is best able to decide from his own condition if the treatment is beneficial. In many other sicknesses the good effect of a cure may show itself only months afterward; with heart diseases, every application which makes the patient uncomfortable and tired is harmful and must, at once, be discontinued.

5. Recently a way has been discovered of putting the muscles of heart and blood-vessels into better order by treating certain of their nerve-centers in the spine. The results of this spondylotherapy are in some cases excellent and will hardly be believed except one has seen them.

All the treatments mentioned can be recom-

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Digitalis and
Other Medi-
cines!

mended only as long as the heart has reserve strength. When the reserve is gone and the patient becomes short of breath after the least effort, then rest, diet and medicines must be used exclusively. We possess in digitalis one of the most wonderful heart remedies. By comparing the heart to a pump, we may illustrate the effect of digitalis by saying that it causes a more thorough and extensive stroke of the piston. It should be given whenever the heart is making weak beats in its effort to circulate the blood—for example, when the pulse is over ninety. It should not be prescribed when the heart-beats are efficient and their number is not more than seventy, the cause of the inefficiency being located in the nervous apparatus.

Like any other medicine, the quantity needed for the proper effect differs in different people. It is of the greatest importance to prescribe the right dose. This can be decided only by a physician who, while watching the heart's action, increases or decreases the dose until just enough digitalis has been taken to restore the heart's working power; this is generally the case in from two to five days. If digitalis is given too long, or in too large doses, the heart-beats become too slow and finally, over-strained, the heart begins to work rapidly with many weak and irregular strokes. Small doses of the digitalis may be continued for a long time as a tonic, providing the character and number of the pulse-beats are satisfactory and not less than sixty-five per minute.

There exist many different preparations of digitalis.

THEIR CARE AND CURE

Most of them have certain advantages, tho some are ineffective, particularly old leaves. One physician has become used to one, while another prefers another preparation. If the patient can not take it through the mouth, because it disturbs his stomach, it may be injected in a vein or given as an enema. At any rate, digitalis is, in most cases of heart disease, an admirably effective remedy. It seldom fails, except when the patient has taken it many times and the body does not respond to it, just as some people are not affected by tobacco and alcohol when accustomed to the use of them all their lives. Strophanthus, spartein, and some other drugs act in the same way as digitalis and should be used when digitalis is not effective. Dropsy, shortness of breath, drowsiness, and threatening death from heart failure, disappear in many cases when these drugs are correctly used, but they are unable to train the heart, when later on, in due time, baths and exercises should be given for that purpose.

Another excellent remedy for the heart is caffen or drugs composed largely of caffen, such as diuretin, theocin, etc. By widening the blood-vessels they allow the blood to circulate more easily. The heart is rested and its own nutrition improved on account of better circulation in its own arteries. Caffen stimulates the kidneys to throw off more waste, thus removing from the body two great sources of danger, the retained poison and dropsy.

Amylnitrate and nitroglycerin relax and widen

THE HEART AND BLOOD-VESSELS

the blood-vessels and should be taken whenever they are contracted and do not permit the heart to pump the blood without an exhausting effort (angina pectoris). Together with caffein, alcohol, hot applications, and mustard plasters, they often help to keep alive a patient whose heart is nearly exhausted. If they do not act promptly by making proper room for the blood by widening the arteries, morphin must be given as a last resort. It steadies the heart, gives to the vessels the proper width for the circulating blood and last, but not least, allows the patient a little relief, when previously, on account of pain, shortness of breath, and the feeling of impending death, he was bathed in cold perspiration. It must be remembered that excitement itself cramps the blood-vessels spasmodically, a condition which is relieved within a few minutes by morphin. In the hands of a physician who knows how to use it, morphin is a life-saver, and the physician who is afraid to use it is often directly responsible for the patient's death.

Adrenalin, a substance extracted from the little glands situated on top of the kidneys, acts in just the opposite manner. It contracts the blood-vessels and is used when they are so much widened and paralyzed that the blood in them is running as in inelastic, soft pipes, which is the same as tho an engine should try to keep up the same water-pressure with the same amount of water in pipes twice the right size, which is either impossible or, if possible, it puts the heart or the engine under an excessive

THEIR CARE AND CURE

strain. The over-relaxed condition of the blood-vessels is easily diagnosed by the character of the pulse.

Good stimulants are camphor, ether, moschus, and alcohol. As mentioned before, stimulants act like a whip on a tired horse, not by giving strength, but by pushing on to greater effort, which makes it clear that this class of drugs should be used only when there is hope that, with returning general health, the heart will receive a new supply of strength. In many cases, such as shock from an accident, pneumonia, hemorrhages, etc., we may save a patient when we can keep him alive for a few days until the danger, or crisis, is past. Some physicians have the mistaken idea that it is always their duty to keep patients alive as long as possible, notwithstanding the fact that death is really a welcome relief to the poor, miserable body which has suffered agony for years on account of cancer, kidney disease, etc. In effect the use of stimulants in such patients is as tho a man were to stick a knife into a dying animal in order to prove to those standing around that he can still make it move.

To remove the disturbances coming to the heart from a nervous brain, a mind cure, or sedatives like bromids, are sometimes absolutely necessary. Under their influence the heart may get a chance to build up; without them, uncontrolled emotions drive it on or slow it down, without giving it opportunity to beat

THE HEART AND BLOOD-VESSELS

its automatic pace undisturbed. Medicines like bromid, morphin, etc., prolong life for patients who are temperamentally unfit to stand a sick heart.

In arteriosclerosis due to any cause, iodin is worth trying. Physicians do not know whether to ascribe its frequent good effect to action on the hardened walls of the blood-vessels, or to its ability to make the blood less sluggish and more fluid. Some skeptics say that no one has any assurance that his forefathers have always behaved properly. Even if one had himself lived a chaste life, they claim that the specific healing power of iodin is due to the fact that it is a good remedy for everything of syphilitic possibly inherited origin.

Quite a clever device used recently with good result to relieve temporarily a tired heart, is to put rubber bandages around the upper arms and upper legs, in order to dam the blood for ten or fifteen minutes. The heart has then only to attend to the circulation in the trunk and head. This gives it a little rest and afterward it often works better for some time.

Palpitation of the heart is often relieved by an ice bag on the left side of the chest, or by pressure on the nerves which slow down the heart action; these can be reached with the fingers on the front of the neck. Another good remedy for palpitation is to take the deepest possible breath and then, with the lungs full of air,

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stop breathing for a few moments, but this must not be forced too long, as it may bring on a fainting spell. Vibratory massage on sensitive nerve endings all over the body often relieves pain in the region of the heart which has resisted local treatment.

It is only within the last few years that almost every physician owns and therefore uses a blood-pressure apparatus and mistakenly often advises a patient that he suffers from arteriosclerosis, when the blood-pressure is found higher than normal, which may happen temporarily in sound people when they are overfed, bilious, or nervous.

Arterio-
sclerosis

Patients who suffer from true hardening of the blood-vessels can reduce the danger to a minimum by drawing their conclusions from the following facts:

1. Nervousness is a causative and aggravating factor in arteriosclerosis. Pages 45-55 and 224-234 should be reread and understandingly considered in the management of one's life.

2. Constipation and improper food are causative and aggravating factors. No person suffering from arteriosclerosis should eat more than two to two and a half ounces of proteids a day (see pages 90-94). These proteids ought to be taken as white meats, river-fish, cheese which is not more than half ripe. Everything should be avoided which the patient knows does not agree with him. The bowels must be kept clean. Gases, bloat and offensive odor of feces is a sign that intestinal putrefaction exists.

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This means progress for the trouble, as the putrid matter which is absorbed by the blood furnishes a main source of injury to the walls of blood-vessels, especially in the kidneys. If necessary, laxatives must be taken and intestinal antiseptics, to make a good, clean start. The continued use of laxative mineral waters is injurious. Aloe, cascara, small doses of calomel, a fifth of a grain and less, or castor-oil, are preferable. The ideal plan is to regulate the digestion by diet.

3. Tobacco must be reduced in quantity and quality to the least amount which agrees with comfort (see page 117). The drunkards found in poor-houses rarely suffer from hardened blood-vessels, which is common in people who take heavy wines with rich meals.

4. Whenever there is a history of syphilis, anti-syphilitic treatment should be prescribed and every patient with arteriosclerosis must take for years small doses of iodine or a medicine containing iodine.

5. A person with arteriosclerosis should consider his body as an engine, which can be run with safety only with slightly reduced pressure. In very advanced cases it may be necessary to keep the patient quiet in bed for several weeks; the vast majority of patients are better off if kept going regularly at a moderate pace (see page 259).

6. We refer to page 207 and page 267 in regard to electricity and Nauheim baths.

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There is hardly anything more disquieting than the suspense which takes hold of a patient when told that he suffers from aneurism. An aneurism, as explained before, is a blood-filled bag bulging from an artery whose wall was previously weakened by syphilis or a sudden, violent injury. The danger lies in the weakness of the wall, which is likely to burst, thus allowing the blood to run out.

Aneurism

Small aneurisms, the size of a pin head, are found on syphilitic blood-vessels of the brain. When one breaks the escaping blood interferes with the function of the inundated area and the parts of the body which are supplied with nerves from the affected district become paralyzed. As the rent is generally small, the bleeding stops in most cases and, after a month or two the patient regains either partially or entirely the use of his faculties.

An aneurism the size of a fist or larger forms on the aorta, the big main artery in chest and abdomen, and hope for life is gone when it breaks.

A person conscious of having such a breakable dangerous thing in his body naturally is uneasy. He will feel somewhat less alarmed if he remembers that lately, since we have Roentgen Rays, large aneurisms are readily diagnosed, while, formerly many were discovered only at post-mortems of people who died of old age and never suspected the danger they had been in for many years.

Future generations are not likely to see many aneurisms or cases of apoplexy. The blood-vessels

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can be protected by our modern method of treatment against the consequences of syphilis by a physician who knows his business. When he gives too little medicine, the disease only seemingly disappears, remains latent in the system and insidiously attacks the blood-vessels. Nor, on the other hand, should too much medicine be given, as this injures the general health. A patient with an aneurism is safe only in the hands of a scientifically and temperamentally mature physician. Some aneurisms can be operated on, and only an experienced man can give reliable advice by comparing results obtained without and with the use of the knife and electricity.

In regard to the general treatment of aneurisms, it is clear that strenuous exercise, excitement, or any thing that increases the blood-pressure must be avoided on account of the weak wall. Prolonged rest in bed, as formerly suggested, hardly ever does any lasting good. The body becomes weak, and the patient is generally worse when, after six to twelve weeks of enforced idleness in bed, he gets up again and realizes that the aneurism is in no way changed for the better. Quiet work in an office and intellectual pleasures and pursuits ought to be recommended. They do not involve any risk, and take the attention away from the ghastly breakable thing in the body.

As medicines, iodine and antisyphilitic remedies alleviate the discomfort, altho unable to make the blood-bag smaller.

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The diet should be light. Gelatin, calcium, and salt in the food make blood which coagulates quickly and, therefore, will stop a bleeding rent more promptly. Strain during evacuation and everything in the diet which forms gas must be avoided. Constipation increases, while free bowel evacuation decreases the blood-pressure.

The main contributory cause for the formation of blood-bags on arteries, the pressure imparted to the blood-stream by the action of the heart-muscle, is absent in the veins. A vein becomes baggy (varicose), when the blood stagnates. "Varices," altho uncomfortable, are never, except when inflamed, dangerous.

Varicose
Veins, Piles

During pregnancy, when the enlarged womb presses on the big vein in the abdomen and the blood backs up, varices often form on the veins of the legs. They are also produced by garters that are binding or by tight lacing. A common cause is standing daily for hours. By each motion of the body blood-vessels are somewhat compressed at the joints, in the muscles, and this helps the blood to circulate. In the legs of a person who stands all day, for instance at his desk or before an ironing-board, this help is lacking. People with weak veins can comfortably ride a common bicycle all day, while they suffer from varices when using a motor-cycle. Mail-carriers often have to continue to make their rounds, as their legs won't stand a promotion to office work

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where they have to stand. Piles or hemorrhoids are nothing but varicose veins on the lowest part of the rectum, brought on by a heavy, sluggish liver, lack of exercise, constipation, pregnancy, etc. Like all peculiarities of the circulatory system, the predisposition for them is inherited and easily traced through many generations of the same family.

The treatment of varicose veins is easily understood if we remember their cause.

Pressure on the veins must be avoided as much as possible. Tight lacing and close-fitting garters have to be done away with. To relieve varicose veins during pregnancy the pressure on the big abdominal vein by the pregnant womb may be occasionally relieved by lying on the side or partially on the abdomen. Constipation must be avoided and either by a diet or laxative a semi-solid bowel action secured daily. As a laxative aloe is badly tolerated, as it congests the membrane of the rectum.

An occupation where much quiet standing is necessary should be changed for one where some walking and sitting is possible. Whenever admissible, the legs should be put in an elevated position on a table or desk, to make the return flow easier for the blood.

A person who is otherwise healthy should pour cold water for four minutes on the legs and immediately afterward walk for fifteen minutes. The cold water strengthens the walls of the veins and intensifies the circulation. Half a glass of cold water injected into the rectum has a similar effect on piles

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A cold Sitz-bath for five minutes daily, followed by a brisk walk is an almost infallible cure for varicose veins, so many young men worry about and become victims of quacks.

Whenever there is an inflammation of varicose veins or in their neighborhood, the patient should keep quiet, eat very sparingly, and treat the inflamed parts.

Rubber bandages and operations are to be recommended only when all other means are ineffective, altho the operation is simple and without danger. For the removal of piles a rectal specialist is preferable to the average surgeon and gynecologist who not having experience enough, often removes a little too much or not enough, thus preventing the patient for years from having a normal evacuation, or causing the piles to return after a few years. A physician who knows exactly how to proceed, gives almost immediate and permanent relief, especially when the causes for varicose bagging are henceforth avoided.

A nervous, but organically sound heart must be treated by proper general management of the body, and not by applications or medicines which take hold of the heart directly. The first and most important point is for the patient to be examined by a physician who is acknowledged to be thoroughly reliable in the diagnosis of heart diseases and to believe that his heart is organically sound when the physician says so, in spite of the fact that other physicians may express

Nervous Heart
and Nervous
Blood-vessels

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a different opinion. In every profession and business we find well-drest, fine-looking, confidence-inspiring men who are incompetent. We can remove every symptom originating from a nervous heart by self-reliance, systematically graded training in mental and bodily work, common-sense diet, out-of-door life, water and air-baths and, if necessary, as medicines, some valerian and bromural. It is best to dispense entirely with coffee and tobacco. A person who can walk and talk an hour without becoming short of breath may feel safe in the knowledge that palpitation, irregularity of the heart, pain in the left side of the chest, spells of suffocation, etc., etc., are not caused by a functionally insufficient heart, that is, one which interferes with the efficiency and length of life. However, the nervous patient must be true to himself, and to nature and try to eliminate every disturbance caused by the sex instinct.

In part 5 of Chapter III we discuss at length the influence of the mind on blood-vessels. Children are born with a more or less stable circulatory system, the same as with a more or less easily disturbed mental constitution. A light stroke with the finger tips causes a red mark on the skin of some people which remains for several minutes; others have to be rubbed hard and long to make the skin change its color. White marks appear temporarily on the cheeks, or a finger or toe gets deadly pale because the blood-vessels in such parts contract, peculiarities observed

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generally in several members of the same family. Migraine headache is inherited and produced in many cases by a cramp-like contraction or abnormal relaxation of the blood-vessels in certain parts of the head. Sour or highly-spiced food makes some, generally nervous, people, have a rush of blood to the cheeks. During puberty and change of life the blood-vessels are especially lacking in stability. Blushing at the least embarrassing thought is a common complaint. The relationship between sexual desire, fear, success, etc., and a relaxed or cramped condition of the blood-vessels is self evident, after one pays attention to it. We have mentioned in Chapter III the fact that presclerosis, a condition which often precedes the hardening of the blood-vessels, is frequently brought on by nervousness, which keeps the blood-vessels continually on the move, thus wearing them out prematurely, and shortening the length of life.

Nervous blood-vessels are treated successfully by removing, on the one hand, every avoidable cause which disturbs them and normalizing the patient's exercise, work, sexual life, food, mental attitude, etc. (see Chapters VI to IX), and, on the other hand, the blood-vessels must be trained to greater stability by water and air-baths, about which detailed suggestions are given in Chapter X. A judicious course of graduated hot to cold douches or baths sometimes steadies the blood-vessels in a surprisingly short time.

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We have in this country institutions especially
Sanatoriums equipped for the treatment of heart diseases, but it must be remembered that it is the man behind the gun who hits the mark; and that a thoroughly able physician can achieve a cure, even without much paraphernalia, while the incompetent doctor, tho he may have a complete set of machinery and instruments, fails. Fortunately, there are in this country many places where both a competent physician and the best possible apparatus can be found.

It is neither possible, nor the intention, to teach the layman how to treat his own heart. For this reason I do not give, in figures, the dose of medicines, nor any special instructions as to the manner of treating any particular disease, like angina, fatty degeneration, or valvular trouble. Even a sick physician is unable to diagnose and treat properly his own case, much less a layman, who needs in every heart disease a physician to prescribe the medicines, diets, exercise, rest, etc. I only wish to advise how to keep a sound body and heart in working order until a ripe old age is reached, and impart a general idea of the means by which a sick heart can be helped, knowledge which will necessarily lead to satisfactory cooperation between the patient and an honest physician.

XIII

FACTS TO BE CONSIDERED IN THE CHOICE OF PHYSICIANS, NURSES, HOSPITALS AND VACATION TRIPS

PHYSICIANS:

1. The personality often a greater factor than the school of medicine from which the physician graduated.
2. Qualifications of a good physician.
3. The choice of a specialist.
4. Our medical schools and the protected home talent.
5. A case from life, illustrating errors of judgment such as happen daily.

NURSES:

1. As friends in need, and necessary evils.

HOSPITALS:

1. Maternities.
2. Sanatoriums.
3. Asylums.
4. Homes for defective children.

VACATIONS:

1. Why advisable and where to be spent.
2. In America.
3. In Europe.
 - (a) Watering places.
 - (b) Entire change.
 - (c) Time, distance, and perspective change the aspect of trouble.
4. Very sick and deprest people should not travel.

XIII

FACTS TO BE CONSIDERED IN THE CHOICE OF PHYSICIANS, NURSES, HOSPITALS AND VACATION TRIPS

PHYSICIANS

Why is it that people entrust their bodies to a stranger so much more carelessly than they entrust their money? A physician is often called in, perhaps just because he lives in the neighborhood, has a pleasing personality, is musical, is a Catholic, a Jew, or a Methodist, a relative or a friend of a relative, has lived a year in Europe, or has compiled a medical book. Corresponding reasons for financial reliability would not inspire any intelligent person with sufficient confidence to entrust his money for investment to a person so illogically chosen.

The choice of a physician is, of course, difficult. Let us imagine a patient in bed, with an allopath on one side, a homeopath on the other, an osteopath at the foot, and a Christian Scientist at the head, not admitting, for want of room, the eclectic, the physiatric, the magnetic or other healer. The homeopath reproaches the allopath on account of his big doses which may kill; the allopath answers that the small

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pills of the homeopath can not do any good and that valuable time is lost while the patient should be receiving some active help; the osteopath insists that medicines can not do the work, as the patient's frame is all out of order, that the vital force can not reach the organs and that he, the osteopath, can straighten out the patient with his hands and some common-sense suggestions; finally, the Christian Scientist says the patient will get well soon if all the doctors leave the room and the sick man alone.

Every one of these different schools of medicine has not only faithful, but decidedly intelligent followers, who gained their faith on account of results and cures which they saw. Statistics show that ninety-eight out of a hundred patients would get well in time with nothing more than common-sense nursing, such as an intelligent member of any school of healing can prescribe. The chief good which the physician does in many cases, is to see that the natural course of the disease toward recovery is not interfered with by over-anxiety, negligence, or stupidity. He must relieve the patient and his family of the dreadful fear that there is danger of death. A physician is a God-send, indeed, when he can promise that a child with a high fever will recover when the parents are afraid of the worst, and absolutely at a loss to know what the next day will bring. If his treatment is not of a kind that produces clearly to be seen disastrous results, he will be a highly welcome guest and, in most cases, safely see the patient through the sickness to

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recovery. If the patient should die, the family will usually feel it was the will of God, which could not have been crossed.

Every kind of surgery, regardless of what part of the body it is performed on, should be done by a specialist whose work depends on his character and personal skill more than on the school of medicine from which he graduated.

The public generally over-estimates the personal merit in the wonders performed by surgery. Our diagnostic reach is still so limited that one surgeon will advise an operation, while another, equally famed, will oppose it. The progress made in surgery during the last century is due partly to anesthetics, which permit even an inexperienced physician to whittle on a patient, while he is under the influence of ether or chloroform, as if he was a piece of wood and sew the body like a rent in a coat. It is due in part to the fact that physicians have finally realized the importance of keeping their hands, and everything which comes in contact with the patient, clean. Surgeons were formerly just as clever as now, but they brought, with unwashed hands and unclean instruments, an unlimited quantity of disease and death-breeding bacteria into the patient. Our present truly helpful stage of aseptic surgery was only reached after a long battle. Surgeons did not for a long time realize the necessity of being scrupulously clean themselves, but, instead, tried to destroy with antiseptics, such as mercury and carbolic acid, in the

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patient's body such germs as they introduced there with their unclean hands or instruments. Some of the antiseptics used undoubtedly had an injurious effect on the patient. We must all be grateful for the benefits humanity now derives from surgery, but, true to history, we should be just as much ashamed of our past uncleanliness as we are proud of our present-day achievements, which can be performed by any good surgeon, no matter to what school of medicine he belongs.

In every chronic ailment the patient's symptoms are made up of two component parts: one, say forty per cent. of his symptoms, is the result of his sickness, while the other, sixty per cent., is the effect which the first forty per cent. have on his nervous system—worry, impatience, anxiety, etc. Any doctor who is able to remove the sixty per cent. of nervous symptoms will do the patient an enormous amount of good, not only mentally but physically. For instance, if the patient has locomotor ataxia, or heart disease, it is but natural that he should worry about the future, fearing he may become disabled, or a burden to others or may die. This perfectly natural nervous state interferes with digestion and sleep and lowers the general vitality. A thought concentrated on one organ produces abnormal congestion of blood there. Recovery or improvement means a victorious battle of the constitution against sickness. The sixty per cent. of nervous symptoms weaken the body and its

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chance to conquer the disease. A physician with a strong, powerful personality, who knows how to alleviate fear and worry, improves the patient's sleep, digestion, and chance to get well, and by taking attention away from the affected organ, removes one cause of the patient's getting worse. He will do more good, in spite of a possibly wrong diagnosis, than a great scientist who understands the case correctly, but keeps the patient worried and on the lookout for impending dangers, to the exclusion of other interests.

A fanatical religious healer, a wise-looking ignoramus of a physician, a magnetopath or Christian Scientist, may have better success in restoring to a chronic invalid sleep, appetite, and the joy of living with his firm courage of ignorance, than a thoroughly competent physician who, knowing from past experience and medical literature the doubtful outlook, finds it hard to conceal from the patient his apprehension with words of encouragement and cheer. A suspicion that something may be wrong starts people worrying. A suggestion that a bad egg is good does not make it taste any better, but an unfounded suspicion that an absolutely perfect egg has a peculiar odor, will destroy its fine taste.

In some respects patients were better off thousands of years ago when the same person acted as priest and physician; they felt comfortable, even if they did not get well, because they felt sure of having a safe guide to a good place in another world.

Just as influential, for good or bad, as the religious

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fanatic, is the paranoiac physician, who is numbered by thousands all over the world. Paranoia is a state of mind in which a delusion is brought into a regular system and is firmly believed in. The delusion may contain some truth and becomes insanity only because of irrational and too far-reaching conclusions. Such paranoiacs are those men who wish to remove all ills to which humanity is subject—for instance, by a certain diet, or by treatment of certain parts of the body, the spine, the rectum, or the sexual organs. Some dig out with most indiscreet suggestions some hidden flaw in the patient's soul, by the disclosure of which they expect the mind to become well, as by the removal of a splinter they heal a sore finger. These paranoiacs form schools among physicians and among the laity. Finally, the grain of truth in their doctrine becomes accepted by science; and so, in course of time, the exaggerations of the founders are forgotten, and some good is added to the possessions of the race.

One school of healing has often been a reaction against the abuses of another. Homeopathy was the reaction against the big and dangerous doses of medicine that physicians were in the habit of giving. Christian Science is the reaction against the materialism of physicians who saw in the patient only a mechanism made up of flesh, bones, nerves, skin, and blood, and overlooked entirely the tremendous influence of the mind, as a moving and regulating power over the body.

THEIR CARE AND CURE

During the last few years physicians have learned a great deal about the mind as a factor in curing and causing diseases. Only a few avaricious physicians, who are seeking self-aggrandisement, continue to frighten patients unnecessarily. A confinement, the birth of a child, is a physiological, normal event, generally attended by little danger, but some physicians make out of this physiological a pathological act, suggesting to the woman all kinds of probable danger to kidneys, nerves, breast, etc. They come to attend at the confinement with preparations as if to perform a major operation. No wonder a frightened mother may have no courage to undergo a second time such an experience. They instil in the mother's mind distrust of her own power to give birth to the child normally. Fear and distrust have a strong paralyzing influence on automatic organs, such as the uterus. Such physicians often succeed in making necessary the use of instruments and operations where, without their interference and suggestions, everything would have gone smoothly.

These are the same men who try to convince their patient that his sore throat they treat is diphtheria; a cold, a threatening of pneumonia, which they have stopt in time; a disordered stomach, a dangerous case of ptomaine poisoning; constipation and gas, impending appendicitis. It is distressing to see how such confident men frighten the public and tax the patient's purse and vitality with unnecessary drugs and operations. These men are responsible for the fact that

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to-day 17,600,000 people in the United States are resorting to some form of mental healing.

Altho in most cases nature does the work and the doctor receives the pay, there are other diseases in which life depends on correct treatment. It is, therefore, well worth while to inform one's self about the necessary qualifications of a competent physician.

A good physician is trustworthy at all times, mentally and morally sound, has a fair medical education, is willing to treat the patient carefully and to call in at once a specialist when he is not reasonably sure of his own diagnosis and treatment; he acknowledges that division of labor secures greater proficiency. A physician must have courage to follow the line of treatment he decides on as best, even tho the patient objects, and must shoulder the necessary responsibility, as nothing is absolutely certain in dealing with human life; but he must be open to conviction. He must not believe that he is a great fighter because he sticks to a wrong diagnosis and treatment down to the patient's last breath.

The really conscientious and scientific physician, who realizes the difficulties of his work, will always be glad to have an able man with him in the struggle for his patient's life. He will not call in a consultant merely to justify his own acts, but to help him in the examination and treatment. The most successful men owe their fame to minute care in examining and finding out everything that can help in the diagnosis.

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Old physicians often know many things theoretically that they do not put into practise. Very young doctors try many things in their practise which they know only theoretically. In a difficult case, the two working together harmoniously make a good combination. The experienced man has already in the past met many emergencies, while the inexperienced one is likely to meet situations which he has not encountered before, when he must act at once without knowing what experience in similar cases has shown to be the best course.

A physician is called to help in a misfortune like sickness or accident. A friend in need is hard to find. Many patients do not get well because they do not follow the doctor's orders. If they felt sure that the physician was a real friend who treated them as he would himself, they would follow his advice implicitly. They would not refuse to undergo a necessary operation. The physician who is a trustworthy friend is generally appreciated and can use the gratitude of his patients to influence them for their own benefit. Young physicians generally start out in their profession with the kindest feeling of fellowship toward all mankind, but, unfortunately, they often become embittered and mercenary because a few ungrateful patients neglect to pay their bills, or feel that because the doctor has shown much interest and friendship there should be no charge made for services rendered!

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The physician's reliability can not be measured by the number of visits, or by his interest in family gossip. One who comes once a day and gives clear, precise (preferably written), orders and who thoroughly understands the case, is, unfortunately, often dropt for the clever medical-peddler who comes three times a day, affects interest in every member of the family, brings candy to the youngsters, but really does not know what is wrong with the patient.

Another peculiar attitude is that of admiration for a doctor who uses continually remedies newly exploited in the newspapers. The public does not remember the fact that constantly to prescribe new remedies is a tacit admission that something was often wrong previously. The inefficient artisan is always in need of new tools. Science does not make progress in a straight upward line; it goes in spirals, and what we believe to-day to be a truth, the to-morrow may prove to be a mistake, and vice versa. The best that the human mind invents needs modification before it will work smoothly. When Koch first introduced his cure for tuberculosis and Ehrlich his for syphilis, many thousands of hard-earned dollars were spent to receive just the opposite of the expected benefit, while now, after more thorough tests, we know in which cases and in what doses these remedies should be applied. We can use them with benefit, and without danger of sacrificing the patient's life to newspaper-born enthusiasm.

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Sometimes the cause and character of a disease allow quick diagnosis and cure. In most cases the body needs time to make clear its symptoms and to conquer the sickness. To specify at once a disease with a name is often impossible; the conscientious physician has to yield this point to the bold gambler. The public ought to know that for a chronic case, patience and chronic treatment is necessary, while only acute diseases like typhoid, pneumonia, etc., may be expected to become cured within a few weeks or months.

When everything is going smoothly on the safe road to recovery, the good physician will not with remedies and treatment, break in upon nature's regenerative work. The public should not impatiently ask that something "really should be done" when the well-cared-for body is safer without any drugs and will be helped, in case of emergency, more promptly by medicine to which it has not been accustomed.

Only the great benefit derived from confidence in a physician, the wonderful resisting power of the human body, the great achievements reached in the prevention of diseases, the successful treatment of diphtheria, etc., explain why the public has not lost faith in the medical art, which has killed, for eighteen hundred years, untold thousands, by blood-letting, by the use of poisonous drugs, by dirty handling of wounds and of women in childbirth, by advocating closed windows, and by cruelty to the insane. Until

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fifty years ago physicians fought with all their might against any reform looking to cleanliness, small doses of drugs, open windows, etc. The history of medicine is the history of fatal errors in well-meant work, but so grave were the errors that they should teach each physician to judge schools of medicine to which he does not belong leniently. Cures are performed by each school which would be impossible to the other. Among unselfish and well-meaning physicians, a mutual understanding should be reached as to what is contained in each to the best interest of the patient. There must always be some allowance made for jealousy among physicians. As they realize that their personality counts a great deal, they are hurt when another succeeds where they have failed. It seems to them a reflection, to some extent, on their person.

The choice of a specialist is not an easy matter; for instance, in a surgical case. Life often depends on the ability of the surgeon. We have physicians who, as surgeons and as men, are worthy of the highest praise and of absolute confidence. There are others who operate in a remarkably skilful manner, but are too eager to perform an operation for the sake of money and experience, when the patient would have recovered as well without it. They see nothing criminal in advising an operation in cases which can be treated just as correctly with as without an operation. A surgeon who performs dozens of operations each week

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and is sure that the patient will not die under his knife, feels perfectly justified in advising what he considers a sure and short cut toward recovery on the operating table, in preference to the presumably longer route by medical treatment. He does not seem to realize that many patients may leave the hospital with their wounds healed, but may need years, perhaps, to recover from the effect of the shock or the anesthetic. An operation should not be suggested unless it is a real necessity. After an operation has once been suggested, even tho it is not necessary to perform it, it needs a superman to reassure a patient that he can recover without one. Often he must be operated on just to relieve his mind, not because the sickness demanded it.

A clever surgeon may perform an absolutely unnecessary operation, which may still do the patient a tremendous amount of good, as many people are helped by a decided change, especially when allowed, as an operated patient, to hold for some time the center of the stage in the family. An unnecessary operation may have almost as great a suggestive effect as Christian Science.

One of the world's best surgeons wrote in 1913, to twenty patients, from each of whom he had removed a perfectly sound appendix. These patients had come to see him, complaining of symptoms which are considered sure signs of chronic appendicitis. After the abdomen had been cut open, it was found that the appendix and all other organs were macro-

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scopically and microscopically perfect. On inquiry, seventeen of the twenty persons who had been mistakenly operated on declared that they had been cured by the operation of abdominal pain and stubborn constipation. Only three were not decidedly improved by an unnecessary operation.

Many operations are recommended as necessary by every competent surgeon. But surgery is not always an exact science, in so far as it concerns the diagnosis and the decision as to whether an operation shall be performed. For instance, in appendicitis, it is better to operate on all patients, altho eighty-five out of a hundred would get well without an operation; it is only the fifteen in a hundred that the operation is necessary to save their lives. As, however, no physician knows whether the patient can get well without an operation until he has been cut open, no way is left except to operate unnecessarily on the eighty-five in order to save the fifteen. It is the same with many kinds of tumors; no one can foresee if a harmless one, for instance, in a woman's breast, may not become malignant. In spite of all this, the office of State Surgical Inspector should be created; the inspector should be a competent physician, but with no right of jurisdiction. He should collect statistics by an inspection of all tissues removed by operations; this would suffice to act as some curb to the enthusiasm of inexperience.

It is a peculiarity of most people who make a deep, exclusive study of one subject, that, to them, its prin-

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ciples seem to apply everywhere; they entirely overstep its real limits. This is the case with the nerve specialist, to whom every disease seems to be a nervous one; or with the dancer who feels that she can express a Beethoven symphony by a leg-motion; or with the politician who promises to cure all the evils of envy and inefficiency, by limiting the power of foresight and ability. It is the same with all these as with the surgeon who hopes, by shaping and cutting the body, to reach the sum and substance of life.

We have in this country medical schools which are as good as the best in Europe, altho one branch may be better here and another there. We also have here medical schools where the teachers and other facilities do not offer to the student an opportunity of acquiring knowledge of the essentials such as he should possess before he is allowed to make, without the least supervision, a living from the misery, sickness, and confidence of frightened patients. There should be a uniform examination in all States of the student at the bedside, in the operating-room, and the laboratory in order to prove that he is a person to be trusted. The public generally does not know that at present state board examinations for a physician's license are taken in a business office and consist of answering about a hundred and twenty questions in writing, which is virtually only a test of the memory and industrious cramming.

There are States with poor medical schools which

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impose purely theoretical examinations on men who have graduated at the head of their classes in the best eastern colleges and who have practised successfully in New York and Chicago for many years, during which time facts and experience had crowded from their memories mere words and much merely theoretical knowledge. In the case of a man who had graduated with a low average from a school in another State, or from some objectionable school, there may be good reason why he should be re-examined when he comes into a new State to practise, but life is more important than wool and iron and an examination should not be used to act like a prohibitive tariff, to protect an inferior medical home-product against better educated physicians, who may be able to save one's mother or a child, whom the former are unable to help.

Public opinion is a great power for good, but only when wrongs are known to exist can they be remedied. For this reason let me cite a case selected from thousands of similar ones, which will exhibit a well meaning physician injuring a patient by a seemingly correct treatment of a disease, a specialist was called in to perform an irrational operation, and Providence saved the life, but for these services the family gratefully paid hundreds of hard-earned dollars to a doctor who really was the cause of most of the dangers and the great length of the sickness.

It is a case of a widow with an old mother and two children who had just moved into a large city in one

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of our western States. The old lady fell and hurt her forehead. A physician, whose name they happened to know, was telephoned for, came and put in a few stitches and the wound healed. This little operation could have been performed by any person of ordinary intelligence; but the family considered it had enough of a test of his ability to warrant them in entrusting to this doctor the health of the family. An epidemic occurred. One daughter became ill with typhoid, and the doctor advised, quite correctly, that she be taken to a hospital, but, of severally equally good ones he recommended the one against which the frightened mother had a prejudice, as she had heard rumors of its being loosely managed; moreover, it was the one farthest from her home. The doctor preferred particularly this hospital because he was on its staff and so could promise that the patient would be treated there with special consideration. The best private room was secured for the patient, but unfortunately, it was on the floor reserved for surgical cases. Well-meant kindness was here a mistake. This typhoid patient did not belong in that place as she could not share in its bathing, dieting, and nursing facilities, because of the danger of infection to surgical patients. On the infectious floor, however, everything was in a beautiful state for such a case. The child was worse off among the surgical cases than it would have been at home.

This doctor had learned that typhoid patients either should be fed very lightly, in order to spare the dis-

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eased intestines, or with a liberal, very nourishing liquid diet, in order to keep the body in the best possible condition. He decided on the last diet as more modern and so prescribed milk, which the child never had liked, and five eggs daily, when two were the most she ever had been able to take without becoming nauseated. The natural result was that the intestines became badly bloated. As in all cases of typhoid, there were ulcers in the intestines which became stretched from distention of the bowels, leading to an eroded blood-vessel bursting and this brought on a large hemorrhage. The prescribed diet, altho excellent in most cases, was wrong for this patient whom it brought to death's door.

During a hemorrhage the heart becomes weak, the patient faint. In order to direct a greater amount of blood to the head, it is customary to lift the foot-end of the bed, and thus cause the head to lie low. The doctor ordered this to be done, but instead of putting the bed on a level again after the fainting had passed, he left the foot-end elevated, with the result that the child lay there for weeks with a bluish red-swollen face and its intestines over-flooded with blood, which, necessarily, ran down from the legs.

The first thought when we see blood is to compress or bind the blood-vessels whence it comes. This doctor, holding to the most advanced surgical ideas, called in a colleague to help him operate by binding up the blood-vessel in order to make sure that the hemorrhage would not occur again. To find in several

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dozen ulcers the artery which had just stopt bleeding, is about as difficult as to find a needle in a hay-stack. The consulted surgeon, accordingly and fortunately, refused to perform what was an impractical operation.

The child had high fever all through its sickness. Hardly any better means exist for lowering a fever than cold packs. It so happened that the delirious child had an aversion to packs and twice a day there was a battle between her and two or three nurses before getting her in the pack. All day long she waited with dread for the nurses to come in. If there had been no other way for lowering the temperature, it would have been all right for the doctor to insist on cold packs. While he could not use the public bathtub on the surgical floor, he was at liberty to give sponge-baths, which later were very successfully resorted to, and caused the child to become less nervous and fretful.

Altho castor-oil is one of the best of laxatives, unfortunately, there was another fight every second evening between nurses and the child when this remedy was forced down. Often the patient got ahead of the nurses by vomiting it. Dozens of less disagreeable laxatives would have answered the purpose just as well.

Frightened by the hemorrhage, this doctor went to another extreme in feeding, allowing for weeks nothing else than broth and gelatin. When the child's heart threatened to give out, a medicine was

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prescribed in place of a more liberal diet. This medicine was not an old standard remedy, but something entirely new, and kept only in one drug-store, which later on became sorry that it had ever carried it, as it proved to be worthless.

And yet the poor mother, frightened at the thought of losing her child, could hardly express gratitude enough to the doctor who had showed his interest by visiting his patient as late as twelve and one o'clock at night, overlooking the fact that his first visit had been made as late as two o'clock in the afternoon, up to which time the nurse had often remained without instructions.

When all the symptoms finally disappeared and the child was ready to leave the hospital, the physician advised keeping her there for two weeks longer, as he had heard of cases (so he told the mother), where the patient had died long after all manifestations of the disease had seemingly disappeared. This, too, was well meant, but as the expense was \$120 a week for room, two special nurses, and their board, it was a great burden for the mother, a working-woman, to bear.

During convalescence the doctor was, as always, very friendly and spoke of the operations he had performed. One day when very tired he seemed happy, as he had succeeded in removing almost a dozen tubercular glands from a child's neck. Another day he spoke of having taken out, in almost record-breaking time, the two badly inflamed ovaries of a young

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woman. To the layman these operations appeared to be glorious achievements, but they only proved that the doctor possess technical skill, and had not had experience enough to advise wisely whether or not an operation should be performed. The tubercular glands of a child are likely to grow again after being removed, while a hygienic life and proper general remedies would have made them disappear permanently. The young woman mentioned above was crippled for life, whereas she would have been permanently cured by a course of patient treatment by any doctor who had had an opportunity of seeing women become victims of incurable depression after they had been half-sexed by an operation.

What are we to learn from this case?

First, that we should inform ourselves about physicians in advance, and not depend on luck to find the right one in an emergency.

Second, that, altho we should be grateful for painstaking efforts, we should insist on a second doctor being called in for regular consultation, when the medicine, diet, and treatment prescribed by doctors do not have the desired results. No sensible physician will resent such a suggestion. When sick themselves, doctors are most apt to change their medical advisers. Four eyes see more than two. Every one's life is as important to himself as that of the king or millionaire to himself; the latter, when dangerously sick, always call in two or three physicians.

The fault with the physician referred to here was

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that he was not a true friend of the patient; his devotion was only superficial. We have a right to expect a physician to give his patient the benefit not only of his own knowledge, but to see that the patient gets the best that medical science can afford. This doctor knew he was inexperienced; he unnecessarily experimented on dangerous ground. A more experienced colleague could have shown him a safe, tried method of treatment. That the life of this patient was saved was due to Providence alone. One shudders to think of the dangers and suffering to which the poor child and mother were unnecessarily exposed. It is to the interest of all that physicians receive the best possible training. They should be compelled to pass through tests before they are allowed to handle, uncontrolled, the lives of others.

NURSES

It is hardly possible to give any higher praise to the profession than to record the fact that the death-rate and suffering generally from almost all diseases has been materially decreased by the efficiency of well-trained nurses. Conditions would be yet more satisfactory if nurses could be fitted in training-schools with the right kind of character, as well as with scientific knowledge. Nursing is a remunerative business, compared with many other occupations, and \$25 a week lures many into this profession for which they are temperamentally unfit. There is hardly any occupation in which mere knowledge without Christian char-

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acter is of so little avail. By Christian, I mean unselfish love of our fellow-beings and the faculty of returning kindness for unkindness. Turks and Jews may have these qualifications, and at the same time they may be lacking in persons who go to Christian churches three times a week. Ability will do no good when the nurse is inconsiderate and negligent. When considering the thousands of lives that have been saved by good nursing, for the nurse's and for humanity's sake, we should not forget the many lives which have been injured and cut short by bad nursing. Most nurses who graduate from good hospitals can be relied on to know the right thing to do, but they can not always be relied on, the same as their less well-instructed sisters to act in the best interest of a patient. Many a patient has caught pneumonia because a nurse was too indifferent to keep him covered at night, when he was restless. Many a case has ended with blood-poisoning, because a nurse became tired of repeatedly disinfecting herself when attending to her manifold duties. Many helpless invalids have been burned by hot water-bottles, have been given improper food, or have had administered a deadly dose of strychnin or morphin, through rank carelessness. What terrible inhuman creatures are some strong nurses who have punished a lonely, suffering patient in small ways, by disdain, or by not speaking to him, because when in pain or despair, the patient neglected to show appreciation, or asked for warm food or a clean bed.

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It goes without saying that a nurse who is not observing, thoroughly clean and exact in everything she does, says or records, who talks about her private affairs, about sickness and depressing subjects, and who makes the family and the patient feel that she is the boss, should be dismissed. Such nurses may be perfectly competent in cases of emergency or during a short, acute illness, but they can not be trusted to sacrifice, for any length of time, their own to the patient's comfort. They generally injure more by what they neglect to do than by what they do. Many a chronic invalid has been made miserable and driven almost to insanity by being placed in the care of a nurse who was intellectually superior, but uncongenial, domineering, and who spent much of her time fixing her hair and finger-nails and in rocking, with her thoughts on her own self and her gentlemen friends. As long as a nurse is on duty, she is paid to give all her time and energy to the welfare of the patient. Nurses who lack self-reliance, need praise as a stimulus to and an assurance that they are doing right. To others, already self-confident, praise gives an inflated estimate of their ability, leading to conceit. This will lessen their value to physicians, whom they may fancy they can supersede, and to the patient whom they may treat haughtily, when they feel they are not sufficiently appreciated. Many a woman possess of good nursing qualities has been spoiled by stupid admiration from a patient, or an unsophisticated physician.

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On the other hand, patients should remember that nurses are hired to do nursing and not to be occupied continually, and that the patient gets the worth of his money if he receives proper attention and care, even tho the nurse is not continually on the move. By not remembering this, many narrow-minded people lose competent and devoted nurses. Would-be aristocrats show their real status in life by relegating a faithful and self-sacrificing nurse to the servants' quarters for meals. While \$25 a week may seem large pay to people whose sterile minds are incapable of appreciating anything but money, they should remember that the personal interest they are getting is something not to be bought by money.

Endurance in body and mind is limited. These same narrow-minded patients do not understand that they themselves would be better taken care of, if they gave a nurse every day two or three hours off duty and every week a whole afternoon. It goes without saying that a life which is in danger can not be watched carefully by one person longer than her strength permits. To keep a nurse on duty day and night, or until she is exhausted, is a great risk to the patient and, besides, if continued long, disables a willing nurse for further good work before she is forty years old.

Satisfactory appreciation can come only from people who understand one's work. Every one should be taught in school, for his own sake, the essentials of domestic nursing; in sickness, he could then better

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help himself and would also understand what good nursing is.

We can not expect to have more satisfactory nurses until the hospital authorities realize that patients do not wish for marble stairs and gorgeous halls so much as for considerate and competent nursing. The same zealous attention should be given to the welfare of nurses as to the plaster and machinery. The life and strength of nurses are at present often misappropriated as they are frequently made to do the work of orderlies and chambermaids. Unfair treatment does not ennoble a character; when to this is added the bad influence of money-mad physicians, we see why many nurses do not become friends in need, but rather a necessary evil in sickness.

HOSPITALS, MATERNITIES, AND SANATORIUMS

A hospital is the proper place for a patient who has an acute sickness, or has to be operated on. A hospital should offer the combined advantages of competent physicians, supervised and trained nurses, immediate accessibility to everything helpful in a case of emergency, facilities for scientific examination, well kept, clean rooms, a quiet neighborhood, and good air. Such a combination, giving the best possible chance for a cure, scarcely ever can be had in a private home. Every intelligent person should look upon a hospital as a possibly necessary, temporary, living place for himself, and, therefore, should take some interest in hospitals. We have many satisfactory hospital build-

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ings, tho, in some of them, ventilation is not perfect and over-heated air retards recovery. The main source of complaint is always the people who have charge of the hospital and the nursing force. Undoubtedly, a reaction is soon to come with the cry for "More love and less marble."

Since physicians have realized that cleanliness is next to godliness and manage maternities accordingly, no woman should hesitate to go there for a confinement, and, in gratitude, should make an effort to have others built for the use of the poor, where indigent women can go to rest for six weeks or so before confinement and to eat nourishing food in order to make the child strong. Many poor mothers, for whom a child constitutes a financial burden, take better care of their offspring later on, if they have had the advantage of being made comfortable in a hospital after the child's birth and there feeding it for a few weeks from their breasts.

Even well-to-do women sometimes have incompetent help, or none at all, and frequently do not know how to run a household without worrying about unimportant details. A quiet, well-lighted room often can be had only by making the rest of the household uncomfortable. To prepare a room properly for a confinement is a task and expensive. If, in case of emergency, something out of the ordinary is needed, delay in getting it may endanger the life of the mother or the child. These are the reasons why it is

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safer and more economical for women to go to maternities, many of which have recorded thousands of confinement cases in succession, without a single day of sickness for a mother or child. It is unfortunate, but nevertheless true, that crowded city quarters deprive a mother of the possibility of giving birth to her child as safely in her own home as in a maternity.

None but incurable, tubercular, and aged people should be allowed to remain longer than six weeks in a sanatorium, in which body and mind are not systematically occupied according to a person's ability. No real improvement is possible, except when rest is combined with training. It is not enough that the patient feels better because he is relieved of the trouble and worry which kept him stirred up at home. People with chronically sick bodies should have their minds occupied and mentally sick people should have their bodies occupied; both should receive, as soon as possible, carefully graduated, systematic training for the diseased part; otherwise patients are likely to become chronic invalids, self-conscious, and, by watching themselves, they keep the sick organ in a state of congestion.

Neurasthenics who have become such from overwork, should be able, after six weeks, to live somewhere in a quiet place, where they may have opportunities of associating with whole-souled, cheery people, enjoying nature and busying themselves out of

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doors. For the born neurasthenic and hysteric, absolute rest for four weeks is the limit to be countenanced. The thoughts and feelings of these people do not need relaxation and rest; they need to be straightened out and put, like soldiers, in rank and file, instead of being allowed to run amuck wherever they choose. This becomes possible only by systematic bodily and mental work, not by card-playing, lectures, needlework, and billiards. A sanatorium for such people should be in a training-school not a lazy bed.

We have many excellent private insane asylums worthy of absolute confidence, but, as a general rule, public ones are more to be trusted, as they are, in spite of, or, perhaps, on account of, newspaper notoriety, better supervised. In a private institution an insane patient may complain about poor food and bad treatment, and no outsider can know whether it is the truth or a delusion. The doctor, superintendent, and nurses being responsible and financially interested, naturally deny the charges, and so the poor patient may continue to be mistreated. There is absolutely no possibility of knowing the truth—in spite of pleasant talk and clean parlors. In state asylums, however, there are too many people who see things to permit continued mistreatment. The well-to-do should have an opportunity of obtaining private rooms in state institutions; they have a right to such benefit from their wealth; but the money made from this source

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should be used in paying the expenses of the whole institution. The state is a guardian of all the insane, and not of the poor insane only, the wealthy ones being in need of help just as much.

State institutions can keep permanently a staff of competent physicians and nurses. This is not the case with most private institutions, in which the attendants are hired temporarily, and depend in their number on the number of guests. When unable at once to find a proper attendant, any decent-looking person is often accepted in these institutions, whether or not he has the right disposition to take care of an insane, helpless, and often uncongenial person. The attendants should be paid at least as well as a good mechanic, or other skilled workman; their work demands a great deal of endurance, kindness, and self-control.

The majority of insane people are not insane all the time and in every sense; they have some intelligence left, and this goes to waste if not used. In asylums where patients work, they do not become idiots as soon as those in asylums where there is nothing for them to do. Occupation makes many less violent and more contented. State institutions offer better opportunities for work, as they may have farms and factories and need not consider the financial returns. To be deprived of work is punishment for a criminal when in prison; it would soon make an even perfectly sane person insane if, in addition, he had to live in an asylum.

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Parents with children who are three or four years behind normal in mental development, or who are morally defective, should not hesitate to entrust them for four to ten years to a boarding-school provided with kind and faithful teachers, especially trained and experienced in the education of sub-normal children. The aim must not be to stimulate a single gift or to push the child to the level, temporarily, of the perfectly normal one; for that may be at the risk of an early breakdown. Congenital limitations must be considered when staking out the goal with a view to making the child law-abiding and fit to take care of himself. For instance, the backward son of a clothing merchant might succeed in becoming a good small farmer, but if an effort were made to have him succeed his father in his city business, he might finally become a jail-bird.

For the defective poor, the government should provide such schools; the money spent for them would be saved in the larger expenses for asylums and prisons, where the neglected, inferior child otherwise lands. It is easier to form than to reform a child.

VACATION TRIPS: AMERICA AND EUROPE

It is not long since people prided themselves on never having taken a vacation. To-day we know that a vacation is a good investment. An engine which has run for eleven months needs some repair and looking after. Our body is capable of repairing itself and its repair method is rest. Any part of the

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brain which has been used continually for the same kind of work, gives out after fifteen or twenty years, while, if allowed to repair itself by a month's rest each year, it will remain in good working order twice as long. I have already referred to the effect which a change in crops has on soil; it is like a change in occupation for a man.

The reason for taking a vacation indicates at once the way it should be spent: There should be brought about a change of occupation and freedom from the annoyances that had to be tolerated during the other months of the year. This common-sense rule is not followed by those who utilize a vacation in doing odds and ends, clearing up business matters, or attending to self-imposed duties at home, for which they did not previously have time. Such people return from a vacation as unfit for enthusiastic work and progress as when they left. The same thing will occur when an unreasonable amount of sport, of sight-seeing, of studying, or of dancing, etc., have been crowded into too short a time. All through this book I have tried to make it clear that the energy spent in one direction is lost for another. For instance, if all the strength the body can muster up is spent in mountain-climbing, swimming, and tennis playing, there is no energy left to store up for business. We should use only so much strength as will leave us, after exercising, fit and eager for more; this means that there is a surplus remaining which is added to the body's reserve. Another point to be

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considered when planning a vacation is, that work wears one out less than friction; to obtain the best results we should get away from everything uncongenial.

Tastes differ as much as faces and can rarely be changed in two or three weeks. One person will derive the greatest benefit by going to a golf-club, another to a fishing-resort, another to the mountains and another to the seashore. For one man, it may be best to leave his wife at home and on his return prove to her it was to the interest of both to separate for a time; for another it may be impossible to spend any kind of a satisfactory vacation without wife and children. Those who live in small towns can gain new interests by going to New York just as the city-dweller may find inspiration from a stay in the country.

The kind of society one may expect to meet is another factor. Some find satisfaction for ambition and efforts in a place where smartly drest people are admired; others are pleased when they find men with whom to rough-it, or ladies who smoke cigarets, while many find the most congenial environment in a place where even men detest a drink. Each derives the greatest benefit when he finds just what he wishes, but one's associates should be of a kind who give encouragement, but do not over-do, undo, or criticize things. The former inspire, while the latter have a bad influence and are likely to disturb an already over-worked brain.

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Weather probabilities must also be taken into consideration. Altho a landscape may be beautiful when it rains, sunshine and dry air regenerate the body quicker than a clouded sky and humidity. For this reason, it is safer to go to sunny Colorado than to the just-as-picturesque Canadian Rockies. Ideal playgrounds in each season can be found in California. So-called seasons are not made by the fancy idea of society; they generally coincide with the best weather conditions.

This country has springs just as beneficial as those in Europe, but we have not found time to develop and systematize their use, as has been done in Carlsbad, Vichy, Nauheim, Baden-Baden, etc., where physicians have become specialists in treatment of liver, heart, and rheumatic and blood troubles, the specialty depending on the chemical composition of springs. Many communities live exclusively from and for a certain cure, making it almost impossible for visitors to break away from a prescribed regime; city administrations keep unwholesome temptations away and substitute inducements that make guests feel at home. Such development has required time, and, until we have reached a similar state of perfection, a trip to some European mineral springs may be properly recommended.

Such a trip offers other advantages. Progress and life in our country are more rapid; those who can not step quickly are left behind. In the old countries,

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the general procession moves much more slowly; for many Americans such a slowing down for a few months provides wholesome relaxation.

Italy, England, France, and Germany are old countries with art treasures that have been stored up for a thousand years or more. They have had sufficient time to develop the comfort and luxuries of life more fully than America. Youthful nations, the same as individuals, admire physical proficiency and achievement. The boy wants to be a cow-puncher, chauffeur, or rough-rider. The young nation sees the most glorious work of a man in the accumulation of vast fortunes, the building of sky-scrapers, the running of fast trains, etc. Every year about a million immigrants from the lower classes of all countries come to our land where they are cordially welcome; they necessarily keep the standard of our civilization in a youthful stage. For this reason Americans of gentle birth feel quite at home when they spend a few months in London, Paris, Rome, or Berlin, where a large part of the native population require, in art, literature, and the whole daily routine, recreations for which a market and taste have not been generally developed in our country.

Time and distance from the cause of worry and anxiety are often needed in order to get a good rest. The Atlantic Ocean and the impossibility of being called up at any time by telephone, become safeguards for easily-startled nerves.

Distance is often necessary to give a right per-

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spective. So long as an unsuccessful business, a bad son, an uncongenial husband or wife, is directly before the eyes, they are big enough to shut out the view of the rest of the world. Their size and importance often decrease in proportion to distance when other things are seen; finally they appear as the unavoidably unpleasant things of life, while formerly they filled the whole existence, to the exclusion of everything else.

After one has returned, the wife, the husband, the partner, and the business often look better and more satisfactory; they are easier to get on with than when one went away. This is not theory, but a proven fact. Things look different when there is a different condition in the nerves. All we see, hear, and feel is only a reflection in ourselves of impressions which our eyes, ears, and senses receive from the outside. When we are not well, those impressions are as distorted just as are pictures when taken on the spoiled plate of a camera. The length of time during which a person should keep away from the source of his trouble is an important factor. Often a year will be needed before the idea, for example, of a dissolution of a marriage or partnership will be given up.

Many nervous men and women who have lost self-reliance find in Europe a tonic. At his home in America a man may have been black-balled in each decent club, in spite of his money, while, in Europe, a 50c. tip to a waiter or a bellboy, will secure for him special attention, and make him feel like

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a person of importance; his peculiarities are taken merely as due to foreign customs. Ignorance and depravity are often covered by intelligent and pleasant faces and fashionable clothes; even friends at home hardly know what is beneath. Women who have bored every one at home, are often able to charm European acquaintances and are received as distinguished Americans. This gives them a feeling of self-satisfaction so that the everyday disappointment which they felt at home ceases; the nerves, sleep, and appetite become better and the body stronger. To this class belong the unfortunate ones for whom the home environment has become like a prison.

To be compelled to be daily in the company of an uncongenial, disturbing person, may be sufficient to spoil the joy of living, the peace, the appetite, and the sleep of a whole family. Every physician knows cases of people who were practically disabled until objectionable persons had been removed from their presence by a trip to Europe or around the world.

People who are in danger of dying in the near future should never be sent far from home; a life in its last stages can not be saved in one place any better than in another.

A patient should be given exact information as to the place to which he should go for treatment, and not be left to follow some man whom he meets on the steamer, who has a friend whose cousin was cured of almost exactly the same trouble. Many trips are spoiled from lack of congenial company; this is

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a point always to be seriously considered before starting, and not left to the chance of finding the right people on the way.

Much sight-seeing should be avoided by patients whose sickness becomes worse when fatigued; for instance, those affected with heart disease, locomotor ataxia, or certain forms of nervousness. Trips do no good as long as the mental depression is so great that nothing can divert the patient's mind. A trip can be recommended only when diversions are able to make the patient temporarily forget himself; otherwise, all the joys of Europe and Asia will be unable to counterbalance the unhappiness in his own soul.

XIV

FINAL CONCLUSIONS

THE OBJECT OF MAN'S LIFE, SELF-PERFECTION:

Shown as a biological truth and a good working ideal.



XIV

FINAL CONCLUSIONS

It is but natural for us to arrange our life in a manner which fits us best to attain the aims of our ambition. We begin by telling our children to be good in order to enter heaven, industrious and persevering in order to win wealth and glory, strong in order to be first in competition, *etc.* When these ideals and our ways to attain them really serve the true interest of man in his entity, then we have the right to expect that beautiful, healthy, obedient children should be when they attain the prime of life at the height of health and happiness. On the contrary, we find most of them around that age with a body which is less perfect, a soul which is more selfish than they were in youth, and in many regards disappointed and disappointing. We easily find the reason for such undesirable development, when we look at our own life in the light which the law of evolution has thrown on everything that exists, and it becomes strikingly clear that the only object of man's life is his own self-perfection, and that all our customary ideals can not meet the needs of man in his entity, as their aims lie to a great extent always somewhere outside his own person.

When man was endowed with the double gift of

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a body possessing instinct and a mind with a certain amount of free will, he became entrusted with the carrying out of the law of evolution in and for his own person; for the rest of the world, nature herself attends to matters.

Selfishness, which is found in all people, represents the instinct of evolution and is a vice only when misdirected; it is the greatest stimulus for good when rightly directed, for we serve ourselves best by leading the best kind of life.

Self-perfection as aim in life was tried in pagan times in the education of the child and as a moving force for its actions, but without producing desired results. Since then, much has changed. We have learned by experience, by experiments and by science, a good deal about the natural needs of man's body and soul. In the first place we know only since Christ that love for an enemy is a distinctly human quality. The old Greeks and Romans did not know sympathy with suffering, and animals are led by their instinct of self-preservation to take care only of themselves, their young, the master, and working or sex community. Christ was not meek, when, fighting a bad principle, he whipt the money-lenders out of the temple, and we are told by modern statesmen and sanitarians that the true meaning of His teachings really fosters our personal interest, as a community can enjoy peace and good health only when the weak and enemy is treated with consideration and care. Until thirty years ago the

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most well-informed parents depended, to a great extent, on luck as to whether their children should grow up to be happy and healthy, or sick and miserable. They did not know that work, sleep, rest, and exercise should be taken in proper proportion; that the different instincts have a perfect right to demand satisfaction; or that certain foodstuffs insidiously deteriorate the action and health of our organs. Parents were ignorant of the fact that the first four years of a child's life decide the man's character. Schools have begun only recently to add to the teaching of theoretical knowledge the doing of real things. Not until recent years did we have obligatory attendance at school and the possibility of educating each child. In former days there was often not enough food and clothing to supply all with the necessities of life; the relation between supply and demand then made it difficult for man not to act as a predatory animal. Under our present system of production and transportation, there exists plenty for all. There is no reason longer why we should continue to act like our primeval ancestors. In truly well-educated and balanced people everywhere the instinct of self-protection by might is already changing into a spirit of self-protection by right and of cooperation, and the wish to be strong and able is inspired more by a hope of making one's self better than by an intention to worst others.

We have learned, further, that with the aid of laws and the police we fail to prevent the indi-

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vidual from being dishonest, insolent, immoral, indolent, and faithless. In fact, we know that legal restrictions have not been strong enough to prevent conditions in society which eventually destroy in most people their beautiful ideals with which, rich and poor alike, they start out in life as boys and girls. The demands of religion and law, altho identical with the best interests of us all were taken as commands and restrictions, and not as the main foundation of health and happiness.

Nor have different forms of government—very bad ones excepted—had the influence on individuals we should like to believe. Altho each self-respecting person wants a government that he can respect, the truth is that in this enlightened republic of the United States the number of crimes is far greater than in the darkest parts of Russia. In some countries of Europe there are seven times as many illegitimate children as we can count here, but we have seven times as many divorces as are granted in Europe. This is not a showing in our favor; many of the divorces are among the better educated classes, who have greater moral responsibility than the poor servant and the working-girls who give birth in Europe to most of the illegitimate children. In Germany a truly excellent, paternal, and imperial government is opposed by approximately the same number of citizens (in the socialist vote) as in our country oppose the old political parties who are not paternalistic. In both countries opponents complain of not having

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received the proper share of happiness. We find under the same government, in the same city, that some children are well cared for and some homes made pleasant and comfortable from exactly the same wages on which others under identical conditions are unable to feed, clothe, and house themselves properly.

To help people to be as most of us wish we were or had been, there is absolutely no other way left than to take hold of the individual when he starts out in life. If we analyze the unhappy, unsuccessful, bad, sick man, we will find, in ninety-nine out of a hundred cases, well-defined causes lying in the individual himself, his manner of living and thinking, his wrong ideals and his self-management; the causes are seldom the general conditions.

The commonwealth must spend its money in the first place for the making of a bodily and mentally healthy individual. This should be the aim of all legislation and all public institutions.

Incompetent teachers have given to the public too low an estimate of the reach of education. Our present teachers are well-meaning, lovable people and deserve the highest praise for having done their best. Lacking in proper understanding of the true needs of man, often helplessly bound to an abnormal life, overstrained in proportion to their strength, and underpaid, many do not possess the personality to inspire pupils with enthusiasm for strength, beauty, and right ideals.

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As a subconscious reaction against their insufficiency, we see everywhere our best men and women eager to speak to the young in lectures and print. We possess thousands of born teachers among bankers, merchants, lawyers, physicians, and last, and not least, among clergymen. Many men of this stamp are at present misplaced and do not render in their work the service they could if they were following their true vocation as teachers. The like of such men will take up this work in the next generation, after communities have given them the position they deserve, socially and financially. Teachers have an almost unlimited influence for good on a pupil when they can show by their own splendid personalities that health, efficiency, and happiness are identical with the noble life God intended for men and women.

For the great mass of children ocular demonstration is necessary. Environments and customs hold habits and thoughts in a firm grasp; the child comes under the spell of what is admired and strived for by the public in general. From childhood on, the aim becomes the acquisition of wealth, social prestige, dress, automobiles, etc., rather than a desire for the cultivation of the best possible body and a character fit to enjoy for many years and to the fullest this lovely world.

We receive an approximate estimate of how much can be done by schools and the class spirit when we compare the child of the poor immigrant with its parents; or when we see many young men who refuse

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to take liquor, altho they were brought up in families where beer and wine were drunk as an inherited custom; or when we see how the American boy treats women more respectfully than did his European forefather; when we see how they want different plays, different food, dress, and occupations.

Improvement in the teaching-force is likely to come sooner than seems probable to those who do not realize that in stores, banks, the professions, and, in fact, almost everywhere, is felt the need of men who learn to do things well. As a reaction, teachers will be demanded for our schools who can equip young people with a foundation of personal honesty, logical thinking, concentration, and good habits, on which the superstructure of efficient specialization can be readily and safely built. With this foundation a man soon becomes proficient in almost any kind of work. At present we find general complaint about failures occasioned by an insufficient foundation, which is erroneously accounted for by lack of detailed learning, instead of by the real cause—which is want of proper development of mind and body in general. This alone is responsible when we find a child, after eight years in school, is unable to write properly and to do understandingly what it is told to do. School buildings and equipments are far better than they were thirty years ago. The men and women who give them life are next in line for improvement.

The final conclusions of this book in regard to the

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cause and remedy for most of our present and mental ailments are:

1. People do not know enough about hearts and minds and their needs. Many nice, intelligent men and women have a distinct aversion to learning anything about these subjects. This is not true; there is nothing more wonderful, delightful, interesting, reassuring, and important to know, and more in need of understanding care, than one's own heart and mind.

2. The ideals of religion, of patriotism, of honesty to acquire wealth and social position seem to meet, as results show, the needs of the individual man in his entity; he especially does not understand the interdependence at all times of the individual, the mind, and society at large. "The individual man's life is self-perfection" is a biological law, and a law, covering all the needs of the individual and of society.

3. In our present generation, and as long as we have immigration from countries not in the highest stage of civilization, we can not rely safely upon the individual. The child must be taught early in school what is best for its own interest, before it has time and opportunity to acquire wrong ideals and habits through disappointment, sickness, and failure. At present we must consider the school as the place from which the welfare of the individual and of the community is best protected.

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